



# Environmental Impact Analysis Process

**FINAL Environmental Assessment for  
Temporary Use of the Columbus Police Department Outdoor Firing  
Range**

**United States Air Force  
Air Education and Training Command  
Columbus Air Force Base, Mississippi**

**January 2010**

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## **FINDING OF NO SIGNIFICANT IMPACT (FONSI)**

### **TEMPORARY USE OF THE COLUMBUS POLICE DEPARTMENT OUTDOOR FIRING RANGE COLUMBUS AIR FORCE BASE (CAF B), MISSISSIPPI**

An Environmental Assessment (EA) was prepared to evaluate potential environmental impact(s) associated with the use of the Columbus Police Department (CPD) Outdoor Firing Range for combat arms training. The current address of the CPD Firing Range is listed as 203 Martin Luther King, Jr., Drive South, Columbus, MS 39701.

14th Mission Support Group/Security Forces Squadron (14 MSG/SFS) proposes to continue combat arms training operations at the CPD Outdoor Firing Range. CAFB personnel have used the CPD Firing Range for training operations since March 2006. The primary objective is temporary relocation of CAFB personnel to a firing range that has the capability of supporting combat arms training in the most cost effective manner with little impact to the environment. Other considered alternatives were eliminated due to environmental impact, security, cost estimates, transportation of personnel, compatible land use and safety. Implementing the No-Action Alternative would require CAFB to discontinue using the CPD Firing Range.

CAF B will enter a five-year temporary real estate license agreement to use the CPD Firing Range. Also, CAFB personnel will continue using weapons and ammunition compatible with the original design of the firing range. Therefore, adverse or future significant environmental impacts from long-term use of the firing range are not anticipated.

At the CPD Firing Range, CAFB personnel currently use frangible ammunition only during combat arms training. The total of lead rounds expended by non-CAF B personnel is 97,400 rounds annually. Under the proposed action, the limited use of the CPD Firing Range should minimize the likely potential for significant impacts to environmental resources. Furthermore, CAFB personnel will be using the CPD Firing Range one day a week (Monday) during normal working hours (between 8:00 A.M. and 5:00 P.M.), firing a maximum of 2,800 frangible rounds per week compared to an average of 2,000 lead rounds fired by non-CAF B personnel. Although the number of rounds fired by CAFB personnel is higher during weeks of maximum use, frangible (non-lead) rounds are only expended.

The CPD Firing Range is located less than one-mile from residential areas, several small commercial businesses and the Luxapalila Creek. Resource areas evaluated to determine potential environmental impacts of the proposed action included noise, geological resources, water resources, biological resources, infrastructure, land use, socioeconomics, hazardous materials and waste and safety to civilians and/or property. Under the proposed action, no significant impacts to resource areas at the CPD Firing Range are anticipated to occur.

Conducting combat arms training at the CPD Firing Range would not significantly impact noise levels at the subject property and the surrounding areas; the noise levels generated by CAFB personnel would be typical of the standard activities that have occurred at the firing range since it started operations in the mid-1950s. Combat arms training would occur one day a week during normal working hours.

Significant impact to soil quality is also unlikely to occur as a result of the proposed action. From March 2006 to July 2006, CAFB personnel used lead rounds. An environmental baseline survey was completed to determine the amount of lead contributed by Columbus AFB during this period. The quantity of lead contributed by Columbus AFB to the subject site was calculated to be approximately 0.264%. The percentage was calculated by dividing the number of rounds expended by CAFB personnel (1,800 rounds) by the total number of rounds expended by non-CAFB personnel (681,800 rounds). Therefore, it is unlikely that the activities involved with CAFB actions resulted in any significant impacts to soil quality at the CPD Firing Range. Currently, CAFB personnel use only lead-free frangible ammunition, thus avoiding future significant lead discharge to the municipal storm water drainage system, which in turn would be released into the Luxapalila Creek. Use of lead-free ammunition also averts significant environmental impacts to several rare, threatened and endangered species found in the Luxapalila Creek.

Significant impacts to the wetland area near the subject site would not occur. The use of the CPD Firing Range by CAFB personnel would stay within the footprint of the firing range, and would not affect wetland function in the surrounding areas. The proposed action would not involve any construction; therefore, significant impacts to the 100-year floodplain would not occur. The AETC Supplement to 32 CFR 989.14(g)(1)(ii) provides that a Finding of No Practicable Alternative (FONPA) is not required when a proposal in a wetland or floodplain is only routine for operations. Since CAFB would use weapons and ammunition that are compatible with the CPD Firing Range, the proposed action would constitute routine operations for this facility. No FONPA is required.

Conducting combat arms training at the CPD Firing Range would not significantly impact infrastructure. Due to the limited use of the CPD Firing Range by CAFB personnel, no additional infrastructure would be required to support wastewater or energy requirements for the facility. The transport of CAFB personnel and weapons to the CPD Firing Range does not conflict with Average Daily Traffic (ADT) volumes or traffic infrastructure. Small firearms used by CAFB personnel remain compatible with weapons fired currently and historically by law enforcement agencies, military facilities and private citizens that have used the firing range. Therefore, the proposed action would remain compatible with current infrastructure.

No significant impacts to land use would occur. Analysis for land use included assessing the impacts of the proposed action on the CPD Firing Range and surrounding properties. All combat

arms training activities would remain within the footprint of the firing range. The proposed action would keep this facility compatible with historic and current land use.

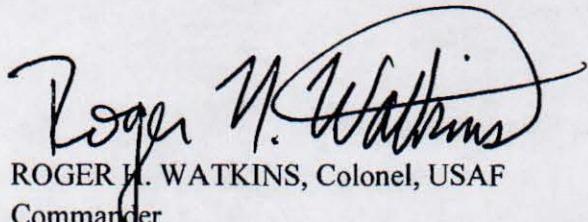
The proposed action does not disproportionately affect the minority population or low-income residents in the surrounding area. All activities conducted by CAFB personnel at the CPD Firing Range would stay within the footprint of the firing range. CAFB personnel would use the firing range one day a week (Monday) during normal working hours (between 8:00 A.M. and 5:00 P.M.). Also, use of the CPD Firing Range by CAFB personnel would not create visible changes to the subject site.

CAFB personnel activities would not create significant impacts from use, storage or disposal of hazardous waste or hazardous materials at the subject site. Weapons used by CAFB personnel would not be cleaned at the CPD Firing Range. They would be cleaned at a designated weapons cleaning area at CAFB, and any solvents or other cleaning materials would be handled and disposed of in accordance with state, local and federal laws, ordinances and regulations. Also, ammunition would not be stored at the firing range. After firing, brass would be collected by CAFB personnel and then transported in the Combat Arms trailer to Munitions at CAFB. Brass then undergoes inspection, certification and shipment to the Defense Reutilization and Marketing Office at the Anniston Army Depot, Anniston, AL. Munitions personnel (CAFB) state that there are minimal dangers associated with the transport of live ammunition or shell casings between CAFB and the CPD Firing Range.

No significant impacts to CAFB personnel utilizing the CPD Firing Range would occur. During hours of training at the firing range, CAFB personnel would wear dual protection (E.A.R. inserts and E.A.R. muffs) and instructors would wear Peltor Tactical 7 Classic earmuffs. The impulse noise measurements indicated that CAFB personnel are exposed to a lower level of noise than the impulse noise standard in Air Force Occupational Safety and Health Standard 48-20. Personnel air sampling results (August 2007) indicated that during weapons firing CAFB personnel are not significantly exposed to contaminants (copper, tungsten, particulates, lead, ammonia and hydrogen cyanide). Therefore, no occupational overexposures exist at this time under the current operating conditions. Also, all safety precautions would be taken while transporting CAFB personnel to the CPD Firing Range, and during combat arms training at the CPD Firing Range.

According to a risk assessment conducted by CAFB personnel (Environmental, Bioenvironmental, Real Property, Security Forces and Safety), several items pose hazards to civilians or adjacent property. The previous Wing Commander signed a deviation memo, dated 13 Jan 08, based on Engineering Technical Letter (ETL) 08-11: *Small Arms Range Construction*, 20 Oct 2008. CAFB personnel would take all necessary safety precautions to ensure no risks to civilians or surrounding properties near the subject site occur. This includes limiting the use of the CPD Firing Range to one day a week (Monday) during operating hours (between 8:00 A.M. and 5:00 P.M.), using small firearms that are compatible with CPD Firing

**Finding of No Significant Impact:** Based on my review of the facts and analysis contained in the Environmental Assessment, which is incorporated herein, I conclude the proposed action will not have a significant impact either by itself or considering cumulative impacts. Accordingly, the requirements of the National Environmental Policy Act, regulations promulgated by the President's Council on Environmental Quality and *32 Code of Federal Regulations 989, Environmental Impact Analysis Process* have been fulfilled, and an Environmental Impact Statement is not required and will not be prepared.



ROGER L. WATKINS, Colonel, USAF  
Commander

**DRAFT**

**Cover Sheet**

**ENVIRONMENTAL ASSESSMENT**

**Temporary Use of the Columbus Police Department Outdoor Firing Range**

- Responsible Agency: Department of the Air Force, Air Education and Training Command, 14th Flying Training Wing, Columbus Air Force Base (CAFB), Lowndes County, Mississippi.
- Proposed Action: The 14th Mission Support Group/Security Forces Squadron (14 MSG/SFS) proposes continued temporary use of the Columbus Police Department Outdoor Firing Range for combat arms training.
- For Further Information: Amanda Woods, Environmental Planner, 555 Simler Blvd., Suite 102, Columbus AFB, MS 39710, (662) 434-7144.
- Abstract: The purpose of the proposed action is to continue accomplishing safe combat arms training for CAFB personnel who are required to maintain competency with firearms. The Environmental Assessment (EA) evaluates the Proposed Action, the No-Action Alternative and the Cumulative Impacts. Other alternatives to the proposed action were considered but eliminated from further study. Many factors were considered during the elimination process, including environmental impact, security, cost estimates, transportation of personnel, compatible land use and safety of CAFB personnel. Implementing the No-Action Alternative would require CAFB personnel to discontinue using the CPD Firing Range to accomplish combat arms training. Until a future programmed project to construct an indoor firing range on the CAFB installation is complete or another permanent solution has been carried out, this alternative would prevent combat arms training, delay training schedules and capabilities and could impact mission readiness. Resource areas considered in the impact analysis were noise, geological resources (soils), water resources (surface water and groundwater), biological resources (wetlands, floodplains, fish, wildlife and rare, threatened and endangered species), infrastructure, land use, socioeconomic and environmental justice, hazardous materials, waste management and safety and occupational health.
- Impacts under the Proposed Action: Under the proposed action, no significant impacts to resource areas at the CPD Firing Range are anticipated to occur.
- Impacts under the No-Action Alternative: No significant impacts to the subject site or the surrounding area would result from the implementation of the No-Action Alternative.

### **List of Persons and Agencies Consulted**

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Columbus, MS 39701

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### **List of Acronyms**

ACGIH 2093	American Conference of Governmental Industrial Hygienists 2093
ADT	Average Daily Traffic
AETC	Air Education and Training Command
AFOSH	Air Force Occupational Safety and Health Standard
AFI	Air Force Instruction
AL	action level
APE	Area of Potential Effect
Bcf	billion cubic feet
BRAC	Base Realignment and Closure Actions
CAFB	Columbus Air Force Base
CATM	Combat Arms Training and Maintenance
CEP	Civil Engineering Programs
CES	Civil Engineer Squadron
cfm	cubic feet per minute
CFR	Code of Federal Regulations
CO	carbon monoxide
CO <sub>2</sub>	carbon dioxide
CPD	Columbus Police Department
dB	decibel
dBA	A-weighted decibel
DDR	Demographic Detail Comparison Report
EA	Environmental Assessment
EBS	Environmental Baseline Survey
EDR	Environmental Data Resources

EIS	Environmental Impact Statement
ESA	Endangered Species Act
ETL	Engineering Technical Letter
FONPA	Finding of No Practicable Alternative
FONSI	Finding of No Significant Impact
FTW	Flying Training Wing
HEPA	high efficiency particulate air
HQ AFSFC	Headquarters Air Force Security Forces Center
HUD	Department of Housing and Urban Development
IFF	Introduction to Flight Fundamentals
IICEP	Intergovernmental Coordination for Environmental Planning
ITRC	Technical Guideline for Environmental Management at Operating Outdoor Small Arms Firing Ranges
kts	knots
MACT	maximum achievable control technology
MDAH	Mississippi Department of Archives and History
MDEQ	Mississippi Department of Environmental Quality
MDOS	Medical Operations Squadron
MDWFP	Mississippi Department of Wildlife, Fisheries and Parks
mg/kg	milligrams per kilogram
mg/L	milligrams per liter
MLK Drive S	Martin Luther King, Jr., Drive South
MSG	Mission Support Group
NAAQS	National Ambient Air Quality Standards
NESHAP	National Emissions Standards for Hazardous Air Pollutants

OEF	Operation Enduring Freedom
OEL	Occupational Exposure Limit
OIF	Operation Iraqi Freedom
ORM	Operational Risk Management
OSHA	Occupational Safety and Health Administration
ppm	parts per million
RAC	Risk Assessment Control
RCRA	Resource Conservation and Recovery Act
SDZ	Surface Danger Zone
SFS	Security Forces Squadron
SGOAB	Bioenvironmental Engineering
SGS	Southeast Gas Storage Company
SUPT	Specialized Undergraduate Pilot Training Program
TCLP	Toxicity Characteristic Leaching Procedure
TLV	Threshold Limit Value
TRQ	Target Remedial Goal
TVA	Tennessee Valley Authority
USEPA	United States Environmental Protection Agency
USFWS	United States Fish and Wildlife Service
USGS	United States Geological Survey
VDZ	Vertical Danger Zone
VSI	visual site inspection
VSR	visual reconnaissance survey
$\mu\text{g}/\text{ft}^2$	micrograms per square foot

## **TEMPORARY USE OF THE COLUMBUS POLICE DEPARTMENT OUTDOOR FIRING RANGE**

### **COLUMBUS AIR FORCE BASE**

#### **CHAPTER 1: PURPOSE OF AND NEED FOR ACTION**

##### **1.1 Introduction**

Columbus Air Force Base (CAFB), home of the 14th Flying Training Wing (FTW) of the 19th Air Force, is under the Air and Education Training Command (AETC). CAFB, Mississippi, is one of only three bases in the Air Force that train student pilots in the Specialized Undergraduate Pilot Training (SUPT) program. CAFB has successfully trained pilots in the T-6, T-37, T-38 and T-1A jet trainers. CAFB was the last SUPT base to transition to the T-6, which replaced the aging T-37. The first T-6 arrived at Columbus in October 2006 and was phased in until the last T-37 departed in 2008. Due to 2005 Base Realignment and Closure (BRAC) actions, the base gained additional T-38 aircraft in 2007 to conduct Introduction to Fighter Fundamentals (IFF) training. The primary mission of CAFB continues to be building the world's best warriors, leaders and professional military pilots.

The CAFB Combat Arms Training and Maintenance (CATM) facility was closed in 2006 due to inadequate ventilation. Subsequently, the CATM was demolished in December 2008. As a result, the 14th Mission Support Group/Security Forces Squadron (14 MSG/SFS) has been utilizing the Columbus Police Department (CPD) Outdoor Firing Range for combat arms training operations. 14 MSG/SFS is proposing the continued use of the CPD Firing Range until a future programmed project to construct an indoor firing range on CAFB is complete or another permanent solution has been carried out.

##### **1.2 Purpose of the Proposed Action**

The purpose of the proposed action is to continue accomplishing safe combat arms training for CAFB personnel who are required to maintain competency with firearms. CAFB will enter a five-year temporary real-estate license agreement with the CPD and the Columbus Police Club to use the CPD Firing Range. The primary objective is temporary relocation of CAFB personnel to a firing range that has the capability of supporting combat arms training in the most cost effective manner with little impact to the environment.

##### **1.3 Need for the Proposed Action**

The CATM (Building 980) was constructed in 1956, at 146 Shumake Street, CAFB, Mississippi. Since construction, instructors have trained personnel in operating M-16A2, M-4 Carbine, M-11, M-9, M-870, M-500 and GUU5P weapons.

From the period of 1993 to 2006, the CATM underwent several renovations to comply with occupational exposure to hazardous materials, noise standards and ventilation standards as set forth in the Air Force Occupational Safety and Health (AFOSH) Standard and Occupational Safety and Health Administration (OSHA) Standard. In 1993, the CATM was renovated to include a new bullet trap, ventilation system and standing seam metal roof. In 1997, the ventilation system was redesigned after several on-going complaints of inadequate airflow removal of lead-based weapon discharge smoke at the shooter's line. In 1998, the ventilation system was assigned a Risk Assessment Control (RAC) III based on sampling results, to include: lead swipe samples results ranging from 2.5 micrograms per square foot ( $\mu\text{g}/\text{ft}^2$ ) to 8,000  $\mu\text{g}/\text{ft}^2$ , lead air sample levels exceeding the OSHA action level of 0.025 milligrams per liter (mg/L) of air, lead air sample levels exceeding the Threshold Limit Value (TLV) time-weighted average of 0.05 mg/L and dust-lead samples exceeding the U.S. Department of Housing and Urban Development (HUD) clearance standard of 100  $\mu\text{g}/\text{ft}^2$ . According to the 2001 Industrial Hygiene Survey Report, CAFB attempted to reduce lead levels by reducing the number of personnel firing at the CATM and weapons firing classes, replacing lead ammunition for 5.56 Winchester Ranger with lead-free frangible ammunition and cleaning the range weekly with high efficiency particulate air (HEPA) vacuums.

In 2000, the Air Force Institute for Environment, Safety and Occupational Health Risk Analysis (Industrial Hygiene Branch) assessed the CAFB firing range. Results showed ventilation deficiencies between air supply and exhaust flow rates. The supplied airflow rate was approximately 9500 cubic feet per minute (cfm) while the exhaust airflow rate was 5500 cfm, thus contributing to an inadequate removal of gases and particulates. To reduce the accumulation of exhaust products within the range, the report recommended replacing the fixed-louver supply duct openings with adjustable louvers, replacing the axial-type exhaust fan with a centrifugal-type fan and modifying the local exhaust overhead ventilation hoods on the firing line.

The exposure of personnel to select hazardous materials during firing of 5.56 mm Winchester Ranger lead-free frangible ammunition was also evaluated in the report. Sampling was conducted for copper (as dust and fume), tungsten, ammonia and hydrogen cyanide. Results showed that general area concentrations of copper down the range exceeded the Occupational Exposure Limit (OEL) when compared to the copper fume standard but did not exceed the copper dust exposure limit.

In 2004, the RAC III was removed after the ventilation system passed air pollution testing performed by 14th Medical Operations Squadron/Bioenvironmental Engineering (14 MDOS/SGOAB). During 2005, 14 MDOS/SGOAB conducted a ventilation survey of the CATM exhaust system and results showed that the ventilation system did not meet recommended standards of the American Conference of Governmental Industrial Hygienists 2093 (ACGIH 2093). The supplied airflow rate was 12,180 cfm compared to the exhaust airflow

rate of 656 cfm. CAFB attempted remediation of the ventilation system by installing air ducts, filter walls, an 18,900 cfm exhaust fan and an 18,000 cfm supply fan.

In March 2006, 14 MDOS/SGOAB conducted direct air sampling (using an indoor air quality monitor) at the CATM during weapons firing of Winchester Ranger lead-free frangible ammunition. Area sampling was also performed to determine representative worker's exposure to carbon dioxide (CO<sub>2</sub>) and carbon monoxide (CO) during the firing of frangible ammunition from M-16 weapons. Sampling results of the firing range and office in the CATM showed CO concentrations of 150 parts per million (ppm) during firing and ranged from 26.9 to 27.1 ppm after firing. Insufficient airflow and ammunition off-gassing were determined to be the probable cause of the CO. 14 MDOS/SGOAB assigned a RAC II based on CO exposure and recommended the ventilation system be evaluated for repair or the firing range moved to another location. CAFB attempted mitigation by closing the CATM until hazard abatement was complete and verified, and by temporarily relocating personnel completing combat arms training to the CPD Firing Range.

In 2007, 14 MDOS/SGOAB conducted air sampling to quantify worker's exposure to copper, ammonia, tungsten, lead, hydrogen cyanide, particulates, CO<sub>2</sub> and CO. Laminar flow and ventilation tests were conducted on the ventilation system. The report indicated that the ventilation system did not meet the airflow standard (75 feet per minute across the firing line) in Engineering Technical Letter (ETL) 06-11: Small Arms Range Design and Construction, Section 8.2.8.1.

On September 28, 2008, the CATM was demolished. Therefore, the proposed action is needed to ensure personnel maintain weapons competency/qualification.

#### 1.4 Location of the Proposed Action

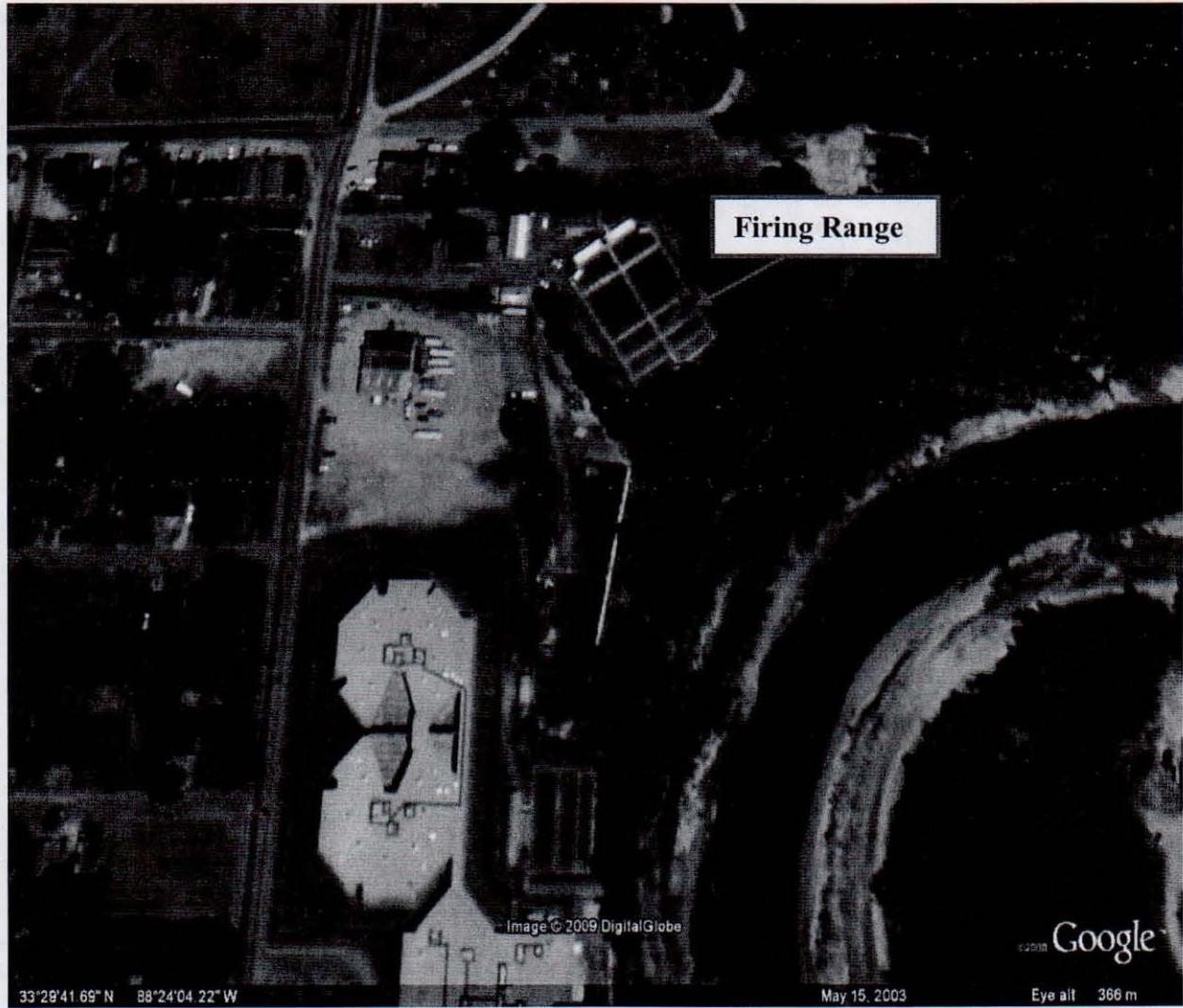
The CPD Firing Range is located in Lowndes County, approximately sixteen miles south of CAFB. The current address of the CPD Firing Range is listed as 203 Martin Luther King, Jr., Drive South (MLK Drive S), Columbus, MS 39701, which was formerly listed as 25th Street South. The general location of the site is shown on **Figure 1-1**. The CPD Firing Range is part of a large tract (over 100 acres owned by Lowndes County) that has been used for various municipal and county needs, including a detention center, county offices and a waste water treatment plant. Other properties surrounding the subject property have developed as residential and small commercial businesses, including a gas station and a sheet metal fabricating business. In addition, a cemetery is located immediately north of the site at the intersection of MLK Drive S and College Street (2nd Avenue S) as seen in **Figure 1-2**.

The subject property is located within the 100-year floodplain associated with Luxapalila Creek [Environmental Data Resources (EDR), 2008]. The subject property is relatively level until reaching the eastern side, where it quickly slopes down to the creek bed below. The property is located approximately 174 feet above sea level (EDR, 2008). The eastern and southern portions

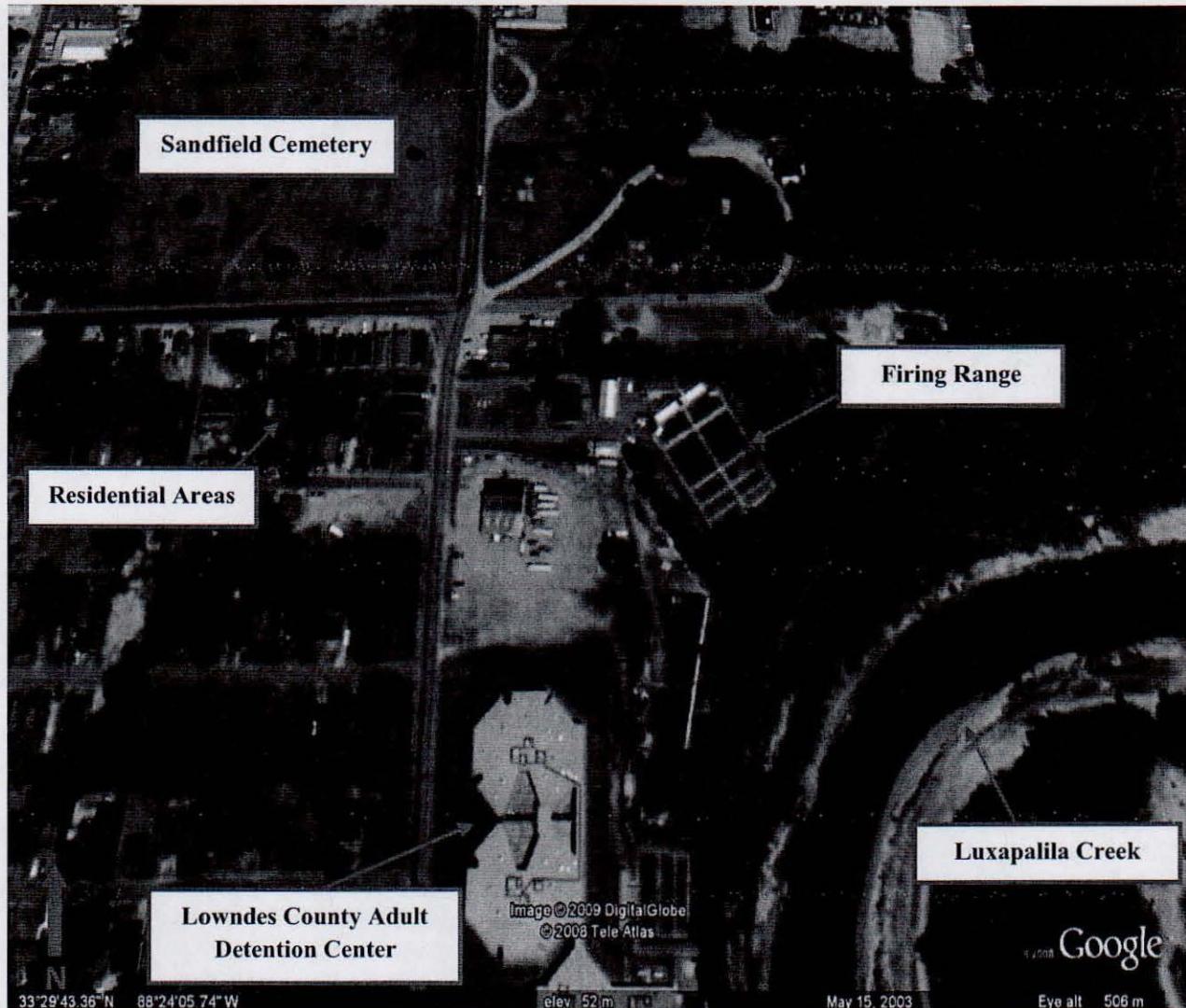
of the site are heavily wooded with moderate to heavy understory all the way to the creek bank. The remainder of the property, which is generally level, was landscaped to accommodate the current structures and shooting range.

### 1.5 Decision to be Made and the Decision Maker

The intent of this Environmental Assessment (EA) is to evaluate environmental impacts associated with CAFB's use of the CPD Firing Range that lead to an informed decision by CAFB on whether to proceed with the proposed action



**Figure 1-1 Location of CPD Firing Range**



**Figure 1-2 Surrounding Area of CPD Firing Range**

## 1.6 Scope of the Environmental Review

### 1.6.1 Resources Areas Evaluated

CAFIB is evaluating potential environmental impacts that may occur from conducting combat arms training at the CPD Firing Range. The intent of this EA is to provide evidence and analysis for determining whether there is potential for significant impact from this action, thus requiring an Environmental Impact Statement (EIS) or whether there is justification to prepare a Finding of No Significant Impact (FONSI).

The following resource areas are addressed in this EA:

- Noise
- Geological Resources
- Water Resources
- Biological Resources
- Infrastructure
- Land Use
- Socioeconomic/Environmental Justice
- Hazardous Materials and Waste Management
- Safety and Occupational Health

This EA also addresses cumulative impacts and their alternatives.

#### 1.6.2 Resource Areas Eliminated from Analysis

##### Air Quality

The Clean Air Act (CAA), 42 United States Code §§ 101-618; 7401-7671q is the federal law designed to make sure that all Americans have air that is safe to breathe and that the environment is protected from damage caused by air pollution. The CAA requires that the U.S.

Environmental Protection Agency (USEPA) set primary National Ambient Air Quality Standards (NAAQS), for six different pollutants: particulate matter, sulfur dioxide, nitrogen dioxide, CO, ozone (smog), and lead. For these pollutants, Congress established maximum time frames for nonattainment areas (a location where air pollution levels persistently exceed NAAQS) to attain these standards in various sections of the CAA. In addition, the CAA requires the USEPA to review these NAAQS every five years. State governments must apply control plans to meet the standards for nonattainment areas or prevent the air quality from deteriorating to an unhealthful level in the first place (attainment areas). The USEPA is also charged with establishing technology-based standards, without regard to risks to public health, such as the maximum achievable control technology (MACT) standards for regulating hazardous air pollutants. The USEPA issues regulations by Industry source categories and subcategories, through the National Emissions Standards for Hazardous Air Pollutants (NESHAP) found in 40 Code of Federal Regulations (CFR) Parts 61 and 63. The CAA requires that Federal actions are in conformity.

The Mississippi Department of Environmental Quality (MDEQ) monitors the criteria pollutants and hazardous air pollutants at various monitoring sites in Mississippi. According to a MDEQ

2007 Air Quality Data Summary, Mississippi met all of the National Ambient Air Quality Standards (NAAQS) set by the USEPA. The CPD Firing Range (Lowndes County, MS) is located in an area that is in attainment; therefore, a conformity determination pursuant to the Clean Air Act is not required. Air quality is not evaluated further in this EA.

### Cultural Resources

Cultural resources may consist of pre-historic districts and historic districts, sites, structures, artifacts or any other physical evidence of human activity considered important to culture, subculture or community for scientific, traditional, religious or other reasons. Cultural resources can be divided into three major categories: archeological resources (pre-historic and historic), architectural resources and traditional cultural resources.

The Area of Potential Effect (APE) contains surrounding land parcels that can be potentially impacted physically, visibly or audibly by activities at the CPD Firing Range. There are no cultural resources located in the APE that will be directly or indirectly affected. Therefore, cultural resources are not evaluated further in this EA.

## 1.7 Applicable Regulatory Requirements

### 1.7.1 Permits/Temporary Real Estate License Agreement

No regulatory permits for using the CPD Firing Range would be required.

14 MSG/SFS will use the CPD Firing Range for combat arms training until a future programmed project to construct an indoor firing range on the CAFB installation is complete or another permanent solution has been carried out. During this period, CAFB will enter a five-year temporary real estate license agreement with the CPD and the Columbus Police Club to use the CPD Firing Range. After the license expires, CAFB may renew or terminate the agreement.

### 1.7.2 Interagency and Intergovernmental Coordination for Environmental Planning

NEPA and CEQ regulations require intergovernmental notifications prior to making any statement of potential environmental impacts. Through the process of Interagency and Intergovernmental Coordination for Environmental Planning (IICEP), the United States Air Force notifies relevant federal, state and local agencies and allows them to make known their environmental concerns specific to the Proposed Action. Comments from these entities are addressed and incorporated into the environmental impact analysis process. IICEP letters and responses are presented in Appendix C.

## 1.8 Organization of the Document

Chapter 1	Contains the statement of the purpose and need for the action, location of the Proposed Action, identification of the decision to be made, a summary of the scope of the environmental review, applicable
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	regulatory requirements and a description of the organization of the document
Chapter 2	Describes the history of the formulation of alternatives, describes the No Action Alternative, identifies alternatives eliminated from further consideration, provides a detailed description of the Proposed Action, and summarizes other actions announced for CAFB and the surrounding community
Chapter 3	Provides a general description of the biophysical resources and baseline conditions that could potentially impact or be impacted by the Proposed Action or No-Action Alternative
Chapter 4	Evaluates the environmental impacts of the Proposed Action
Chapter 5	Summary of the impacts of Proposed Action
Appendix A	Lists document preparers
Appendix B	Lists person(s) and agencies consulted relevant to preparation of this EA
Appendix C	Contains Interagency and Intergovernmental Coordination for Environmental Planning correspondence
Appendix D	Contains the Air Force Form 813, Request for Environmental Impact Analysis
Appendix E	Lists source documents referenced

## **CHAPTER 2: DESCRIPTION OF PROPOSED ACTION AND ALTERNATIVES**

### **2.1 Introduction**

This chapter has eight sections:

- Introduction
- History of the Formulation of Alternatives
- Detailed Description of the Proposed Action
- Description of the No-Action Alternative
- Other Alternatives Considered But Eliminated From Further Study
- Other Actions Announced For CAFB
- Actions Announced for the Surrounding Area
- Identification of the Preferred Alternative
- Comparison Matrix of Environmental Effects of Proposed Action and No-Action Alternative

### **2.2 History of the Formulation of Alternatives**

CAFБ personnel manage an ongoing planning process to evaluate how adequate existing facilities and infrastructure meet mission requirements. The planning process includes developing alternatives such as renovation and alternate uses. Once a facility is identified as unsuitable for renovation or alternate uses, plans for demolition are made to eliminate unnecessary costs associated with maintaining the facility.

During 1993 to 2006, the CATM underwent several renovations in an effort to comply with occupational exposures to hazardous materials, noise standards and ventilation standards as set forth in the AFOSH Standard and OSHA Standard. Per section 1.3 of this document, the CATM was demolished in 2008 due to inadequate ventilation and potential health impacts to personnel.

Under Air Force Instruction (AFI) 36-2226 *Combat Arms Training* and AFI 31-207 *Arming and Use of Force by AF Personnel*, all personnel authorized to bear firearms must meet the level of firearms qualification required by the arming group to which they belong. Thus, the decision was made to temporarily relocate combat arms training to the CPD Firing Range.

### **2.3 Description of the Proposed Action**

14 MSG/SFS is proposing the continued use of the CPD Firing Range until a future programmed project to construct an indoor firing range on the CAFB installation is complete or another permanent solution has been carried out. Currently, CAFB personnel exclusively use the firing range one day a week (Monday) during normal working hours (between 8:00 A.M. and 5:00 P.M.), firing a maximum of 2,800 frangible rounds per week compared to an average of 2,000

lead rounds fired by non-CAFB personnel. Although the number of rounds fired by CAFB personnel is higher during weeks of maximum use, frangible (non-lead) rounds are only expended. It is anticipated that CAFB will enter a five-year temporary real estate license agreement with the CPD and the Columbus Police Club to use the CPD Firing Range. The primary objective is temporary relocation of CAFB personnel to a firing range that has the capability of supporting combat arms training in the most cost effective manner with little impact to the environment.

Weapons currently used to perform combat arms training include the M-16A2, M-4 Carbine, GUU5P, M-11, M-9, M-500 and M-870. These same weapons have been used since the training was relocated to the CPD Firing Range. 14 MSG/SFS is proposing to continue using the M-16A2, M-4 Carbine, M-11, M-9, M-870, M-500 and GUU5P to accomplish combat arms training at the CPD Firing Range.

CAFB personnel used lead ammunition for combat arms training at the CPD Firing Range from March 2006 through July 2006. After July 2006, the Air Force replaced lead ammunition with frangible, lead-free ammunition. The types of ammunition currently used by CAFB personnel for combat arms training include 5.56 millimeter (mm) frangible, 9 mm frangible and 00 frangible buckshot. Historically, CAFB fires approximately 50,000 rounds of 5.56 mm, 35,000 rounds of 9 mm and 1500 rounds of 00 buckshot ammunition annually. 14 MSG/SFS is proposing to continue the use of only frangible ammunition at the CPD Firing Range and to maintain the equivalent level of weapons firing during combat arms training.

Annually, an approximate 550 to 800 personnel eligible to bear arms undergo combat arms training. 14 MSG/SFS proposes that CAFB personnel eligible to bear firearms continue combat arms training at the CPD Firing Range until a future programmed project to construct an indoor firing range on the CAFB installation is complete or another permanent solution has been carried out. CAFB personnel use the firing range on Monday, and each combat arms training class consists of 6-14 personnel, who receive training for the duration of 6 to 8 hours.

After weapons firing, brass shell cases would be collected by CAFB personnel and then transported in the Combat Arms trailer to Munitions at CAFB. Brass shell cases would then undergo inspection, certification and shipment to the Defense Reutilization and Marketing Office (Anniston Army Depot, Anniston, AL).

#### 2.4 Description of the No-Action Alternative

The No-Action Alternative would be for CAFB to discontinue using the CPD Firing Range to accomplish combat arms training. Until further actions are carried out, this alternative would prevent combat arms training, delay training schedules and capabilities and could impact mission readiness. In addition, the alternative would not meet the requirements of AFI 36-2226 *Combat Arms Training* and AFI 31-207 *Arming and Use of Force by AF Personnel*.

## 2.5 Other Alternatives Considered But Eliminated From Further Study

Other alternatives were considered but eliminated from further study. Factors that were considered during the elimination process included environmental impact, security, cost estimates, transportation of personnel, compatible land use and safety.

### 2.5.1 Alternate Sites Considered

#### Little Rock AFB (Little Rock AFB, Arkansas)

CAFБ considered temporarily relocating combat arms training operations to the small arms firing range on Little Rock AFB. Combat arms rifle, pistol, machine gun and grenade ranges are located on the east end of the base. Under this alternative, CAFБ personnel would be capable of accomplishing combat arms training requirements, but the travel time and costs associated with relocation to this site make it an impracticable alternative. The travel distance to and from Little Rock AFB would be approximately 600 miles, and the estimated travel time would exceed ten hours. In addition, the total estimated monthly expenditure for per diem and fuel to transport CAFБ personnel to Little Rock AFB would be \$2620.00. The cost estimate included transport of 40 personnel per month for a 1-day trip and fuel for two vehicles. This alternate site was eliminated from further study.

#### Maxwell AFB (Maxwell AFB, Alabama)

CAFБ considered temporarily relocating combat arms training operations to the small arms firing range on Maxwell-Gunter AFB. After evaluating this alternative, it was determined that CAFБ personnel would not be capable of accomplishing combat arms training requirements. In spring 2008, the Maxwell-Gunter AFB Firing Range was partially closed due to maintenance and safety concerns. Furthermore, the addition of more personnel to the current Maxwell-Gunter AFB Firing Range would exceed the maximum quantity for shooters per year. Another factor that made this alternate site impractical was transportation of personnel. The travel distance to and from Maxwell-Gunter AFB would be approximately 400 miles, and the estimated travel time would exceed six hours. This alternate site was eliminated from further study.

#### Camp Shelby (Hattiesburg, MS)

CAFБ considered temporarily relocating combat arms training operations to Camp Shelby. Camp Shelby is the largest state-owned and operated training field site in the United States and covers over 134,000 acres of land. Currently, Camp Shelby serves as a training site for the Reserve Components and Active Components of the U.S. Army, U.S Navy, U.S. Marine Corps, U.S. Air Force and National Guardsmen. The training site hosts nearly 100,000 National Guardsmen and Reservists annually. Also during times of war, Camp Shelby serves as a major, independent mobilization station of the U.S. Army Forces Command. After further evaluation of this alternative, it was determined that CAFБ personnel would not be capable of accomplishing

combat arms training requirements due to increased U.S. Army training requirements in support of Operation Iraqi Freedom (OIF) and Operation Enduring Freedom (OEF). Another factor that made this alternate site impractical was transportation of personnel. The travel distance to and from Camp Shelby would be approximately 450 miles, and the estimated travel time would exceed seven hours. This alternate site was eliminated from further study.

#### Construction of an Outdoor Firing Range on CAFB

CAFБ considered constructing a temporary outdoor firing range on the installation. After evaluating this alternative, it was determined that CAFБ personnel would not be capable of accomplishing combat arms training requirements. According to ETL 08-11: Small Arms Range Design and Construction, a non-contained range must accommodate the controlled and supervised discharge of weapons and have sufficient land area to insure the discharged projectile does not exit the Surface Danger Zone (SDZ). A non-contained range must have the land area to accommodate both the full SDZ and the full Vertical Danger Zone (VDZ). The ammunition used on the range establishes the required length of the SDZ and the required height of the VDZ.

According to ETL 08-11 (Table 1), the minimal SDZ length required should equal or exceed 15,000 ft for the types of small arms ammunition used at CAFБ. 14 Civil Engineer Squadron (CES)/Civil Engineering Programs (CEP) determined that the alternative action was impractical due to clearance zones behind the demolished firing range. Therefore, this alternate action was eliminated from further study.

#### 2.6 Other Actions Announced for CAFБ

BRAC actions require the relocation of additional personnel and aircraft to CAFБ, necessitating supplementary construction as of summer 2007 through fall 2008. These actions have included the construction of a new IFF Squadron Operations Facility and the expansion of the SUPT building, Flight Simulator building, Egress Shop and the Consolidated Aircraft Support System. An environmental assessment for these actions was prepared as part of the General Plan-Based Environmental Impact Process.

A Mission Support Group Complex (Phase I) was recently constructed with Phase II continuing through winter 2010. A Military Family Housing Privatization initiative project including the demolition of old housing and construction of new housing is scheduled for the duration of 2008 through early 2010. A new Child Development Center is being constructed with an estimated completion of 2010.

#### 2.7 Actions Announced for the Surrounding Area

Numerous planned actions are also occurring in the surrounding area. SeverStal Columbus (previously SeverCorr), a manufacturer of flat-rolled steel sheets for supply to automotive

companies, was approved for a multi-million dollar expansion in 2007. The future expansion will include four steel-related companies locating near the SeverStal Columbus property. SeverStal Columbus is located approximately 26 miles (40 minutes) from CAFB and 14 miles (23 minutes) from the CPD Firing Range. PACCAR, an engine manufacturing facility, underwent construction in mid 2007 and is targeted for completion in 2009. The new facility will be located at the Crossroads mega site near the intersection of Airport Road and U.S. 82. PACCAR is located approximately 18 miles (30 minutes) from CAFB and 6 miles (14 minutes) from the CPD Firing Range. The Tennessee Valley Authority (TVA) has plans of construction for new and additional power supply to support the industrial growth in the Lowndes County-Golden Triangle area. A division of the proposed action will include demolishing and rebuilding a section of the CAFB-West Columbus Transmission Line and replacing twenty structures. The target completion dates for this action are fall 2008 and spring 2009. Southeast Gas Storage Company (SGS) plans to construct an underground natural gas storage facility located 3.5 miles northwest of Caledonia, MS. When the project is complete, SGS will be capable of providing approximately 24.7 billion cubic feet (Bcf) of working gas capacity. Working gas capacity is the total gas storage capacity minus base gas (the volume of gas intended as permanent supply in a storage reservoir to maintain enough pressure and deliverability rates through withdrawal season). If approved, the project will begin injections of base gas in spring 2010. The project is located approximately 13 miles (23 minutes) from CAFB and 19 miles (35 minutes) from the CPD Firing Range.

Other planned projects for the surrounding area include the construction of a power plant, wood products plant and chemical plant. These projects are anticipated to bring jobs to the community and are not expected to affect CAFB.

## 2.8 Identification of the Preferred Alternative

The preferred alternative is to implement the proposed action as described in Section 2.3.

## 2.9 Comparison of Potential Environmental Consequences

Table 2.9.1 presents a comparison of the potential environmental effects resulting from implementation of the Proposed Action or the No-Action Alternative. The environmental effects are described in Chapter 4.

**Table 2.9.1**  
**Comparison of Potential Environmental Consequences**

Resource Area	Proposed Action	No-Action
Noise	○	■
Geological Resources	○	■
Water Resources	○	■
Biological Resources	○	■
Infrastructure	○	■
Land Use	○	■
Socioeconomic/ Environmental Justice	○	■
Hazardous Materials and Waste Management	○	■
Safety and Occupational Health	○	■

Notes: ○ = Minimal Impact

■ = Reduced Impact

● = Significant Impact

+ = Beneficial Impact

## **CHAPTER 3: AFFECTED ENVIRONMENT**

### **3.1 Introduction**

The chapter describes relevant existing environmental conditions for resources, either man-made or natural, that could potentially be affected by the proposed action or alternatives as described in Chapter 2.

This EA analyzes potential environmental effects for the following resource areas: noise, geological resources, water resources, biological resources, cultural resources, socioeconomic and environmental justice, hazardous materials and waste management and safety and occupational health.

#### **3.1.1 CPD Firing Range**

The CPD Firing Range is located in Lowndes County, approximately sixteen miles south of CAFB. Structures associated with the CPD Firing Range operation include the local police club lodge (two-story building), Range office and Maintenance building (Quonset-style building), training building (modular building), spectator stands, maintenance shed (open/covered), repelling tower and firing range. Over thirty groups, including law enforcement agencies, other military facilities, as well as private citizens have used the firing range for training. Operating hours at the firing range are typically 8 a.m. to 5 p.m., Monday thru Friday, and 8 a.m. to 3 p.m. on Saturday. During night hours, the firing range is only open for police training. Ammunition used at the CPD Firing Range has included generally lead ammunition. The summation of lead rounds expended by non-CAFB personnel is 97,400 rounds annually. After firing, shell casings (brass, aluminum or steel) are picked up and deposited into cardboard containers on-site, and are recycled on a regular basis. Spent smoke or gas canisters are also picked up and disposed of in accordance with the manufacturer's recommendations. Further, weapons used by non-CAFB personnel are cleaned at a designated cleaning area, and all cleaning solvents and used rags are properly disposed of in accordance with state and federal environmental requirements.

### **3.2 Noise**

#### **3.2.1 Definition of Resource**

Human response to noise is very subjective, and there is wide diversity in response to noise. Responses vary according to the type of noise, characteristics of the sound source, sensitivity and expectations of the receptor, the time of day and the distance between the noise source and the receptor.

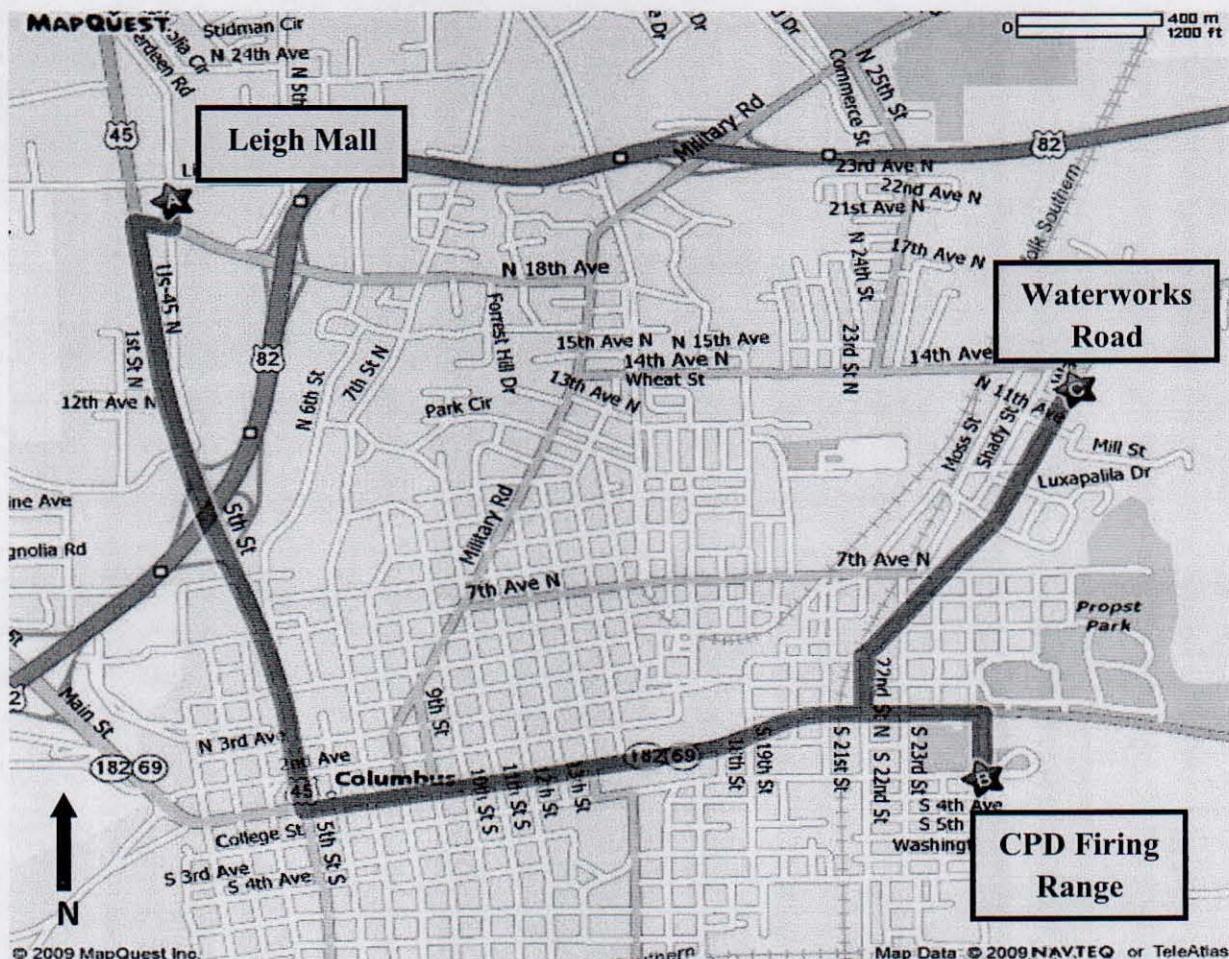
#### **3.2.2 Existing Condition**

Noise at the subject site is generated during weapons firing. The current subject site is approximately 3.4 acres in size and is part of a larger tract of land owned by Lowndes County,

Mississippi. The CPD Firing Range has been used as a small arms firing range since the mid-1950s. Operating hours at the firing range are typically 8 a.m. to 5 p.m., Monday thru Friday, and 8 a.m. to 3 p.m. on Saturday. During night hours, the firing range is only open for police training.

Due to use by multiple law enforcement agencies, military agencies and private citizens for weapons qualification and training, a variety of legal weapons have been fired at the range since its construction. As such, small arms up to 50 caliber rounds and shotgun shot and slugs (primarily 12 gauge) have been discharged at the facility. Additionally, riot charges, smoke canisters and rifle-fired canisters have been used during training exercises. All users of the firing range are required to adhere to strict range rules and are not allowed to bring excess ammunition on site without approval.

Noise surveys for the CPD Firing Range were not available for review. The Columbus Action Center (Columbus, MS) reported that there were no official records of noise complaints against the CPD Firing Range. However, the range supervisor indicated that noise complaints from Leigh Mall (Columbus, MS) and Waterworks Road (Columbus, MS) have been received at the firing range. All complaints are a result of night firing. The location of Leigh Mall and Waterworks Road to the CPD Firing Range is shown in **Figure 3-1**.



**Figure 3-1 Leigh Mall, Waterworks Rd. & the CPD Firing Range**

### 3.3 Geological Resources

#### 3.3.1 Definition of Resource

Geological resources are the geology, soils and topography of a given area. Soils are assigned to hydrologic groups based upon intake and transmission of water under the conditions of maximum yearly wetness, soils not frozen, bare soil surface and maximum swelling of expansive clays [Natural Resources Conservation Service (NRCS), 2007].

Long-term geological, erosional and depositional processes typically influence the topographic relief of an area. Topography incorporates the physiographic or surface features of an area and is usually described with respect to elevation, slope, aspect and landforms.

#### 3.3.2 Existing Condition

The subject site is located in the East Gulf Coastal Plain physiographic province and is underlain by the Southeastern Coastal Plain aquifer system. Within the Coastal Plain region of Lowndes County, the geologic landform is Mesozoic (EDR, 2008). The subject property is relatively level until reaching the eastern side, where it quickly slopes down to the Luxapalila Creek bed below. The topography of the CPD Firing Range is located approximately 174 feet above sea level (EDR, 2008).

#### Soils

Four different soil types have been identified in Lowndes County, Mississippi near the CPD Firing Range (EDR, 2008). The known soil drainage ranges from moderately well drained to excessively drained. The corrosion potential of the soil ranges from low to moderate. The pH level in soils near the CPD Firing Range averages 5.5 pH.

**Table 3.3.2.1**  
**Soil Types Found at CPD Firing Range**

Soil Type	Description
1. Cahaba fine sandy loam	Hydrologic group is Class B with moderate infiltration rates. Moderately low run off potential when thoroughly wet. Soils consist of moderately coarse textures, are deep and moderately deep and moderately well and well drained.
2. Latonia loamy sand	Hydrologic group is Class B with moderate infiltration rates. Moderately low run off potential when thoroughly wet. Soils consist of moderately coarse textures, are deep and moderately deep and moderately well and well drained.
3. Nugent loamy sand	Hydrologic group is Class A with high infiltration rates. Low run off potential when thoroughly wet. Soils are deep, well drained to excessively drained sands and gravels.
4. Prentiss loam	Hydrologic group is Class C with slow infiltration rates. Moderately high run off potential when thoroughly wet. Soils with layers impeding downward movement of water or soils with moderately fine or fine textures.
<sup>A</sup> Water	Soil surface texture is loamy sand. Hydrologic group is Class B with moderate infiltration rates. Moderately low run off potential when thoroughly wet. Soils consist of moderately coarse textures, are deep and moderately deep and moderately well and well drained.
<sup>B</sup> Drainage ways	Soil surface texture is loamy sand. Hydrologic group is Class B with moderate infiltration rates. Moderately low run off potential when thoroughly wet. Soils consist of moderately coarse textures, are deep and moderately deep and moderately well and well drained.

<sup>A</sup>Represents the soil surface texture found near the boundaries of Luxapalila Creek

<sup>B</sup>Represents the soil surface texture found near the drainage ways at CPD Firing Range

### 3.4 Water Resources

#### 3.4.1 Definition of Resource

Water resources include both surface and subsurface resources. Surface water includes all lakes, ponds, rivers and streams within a defined area or watershed. Subsurface water, also groundwater, is commonly found in aquifers. Aquifers consist of mostly high porosity soil, where water can be stored between soil particles and within soil pore spaces. Groundwater is normally recharged during precipitation events and is withdrawn for domestic, agricultural and industrial purposes.

#### 3.4.2 Existing Condition

##### Surface Water and Drainage

Lowndes County, Mississippi is located on the east bank of the Tombigbee River and the associated Tennessee-Tombigbee Waterway. The Tombigbee watershed encompasses much of the East Gulf Coastal Plain of Western Alabama and northeastern Mississippi, flowing generally southward. The Luxapalila Creek runs north to south through east Columbus. The Luxapalila Creek joins the Tombigbee River approximately three miles south of downtown Columbus.

The east side of the CPD Firing Range is bounded by the Luxapalila Creek. The eastern and southern portions of the subject property are heavily wooded with moderate to heavy understory all the way to the Luxapalila Creek bank. From the Mississippi-Alabama State Line to Highway 50, the Luxapalila Creek is classified as a public water supply. The water quality within Luxapalila Creek is generally good, and the creek is the main source of potable water for the City of Columbus. Due to the large amount of sand and gravel and low silt content of the streambed, normal flow conditions in Luxapalila Creek result in low turbidity levels (U.S. Army Corp of Engineers, 2007).

The City of Columbus also has deep well water supply capabilities that are used to supplement the surface supply water as needed. In the 2007 Water Supply Report for Columbus, the city water supply was operating within the required parameters set by the State and Federal drinking water regulations. The subject property is currently served by the municipal water supply system. The close proximity of the subject property to Luxapalila Creek allows it to contribute to surface runoff during rain events to the municipal storm water drainage system. Stormwater runoff from the CPD Firing Range is directed via overland flow into a small underground pipe that begins in the southeast corner of the firing range. The stormwater is then directed to a large drainage culvert located approximately 100-yards south of the firing range. Upon exiting the culvert, the runoff proceeds over a rip-rap pad (rock or other material used to armor shorelines and streambeds against water and ice erosion) directly into the Luxapalila Creek.

## Groundwater

The subject site is located in the East Gulf Coast Plain physiographic province and is underlain by the Southeastern Coastal Plain aquifer system. The aquifer system consists of four regional aquifers that are composed predominantly of clastic rocks (composed of fragments, or clasts, from pre-existing rock) ranging in age from Cretaceous to late Tertiary. The aquifer system underlies an area of about 90,000 square miles in the Coastal Plain of Alabama, Georgia and South Carolina and extends for a short distance into northern Florida. The upper part of the Southeastern Coastal Plain aquifer system grades into the Mississippi Embayment aquifer system in Western Alabama and the north eastern portion of Mississippi, where it underlies an area of about 32,000 square miles.

Groundwater in this region flows generally to the south and southwest due to the sloping of the aquifer. Water quality within the aquifer ranges from fresh to slightly saline and is used for a variety of purposes including municipal water and irrigation [United States Geological Survey (USGS) HA 730 F, 1998].

### 3.5 Biological Resources

#### 3.5.1 Definition of Resource

Biological resources are the plants, animals and other aspects of nature that are important to society for the various services they create and the problems they may create. Groups of biological resources include wetlands, fish and wildlife, rare and endangered species and agriculture.

#### 3.5.2 Existing Condition

##### Wetlands

Executive Order 11990, *Protection of Wetlands*, states that executive agencies shall take action to minimize the destruction, loss or degradation of wetlands and to preserve and enhance the natural and beneficial values of wetlands in carrying out the agency's responsibilities. The subject site is located approximately 100-yards from a gentle bend in Luxapalila Creek on the east. Luxapalila Creek and associated banks fall under the "waters of the United States" as defined by Section 401 of the Clean Water Act. Additionally, some areas located on the east side of the east berm of the firing range have the potential to be included as a wetland area. Currently, these areas are heavily wooded and are unused by the CPD Firing Range.

##### Floodplains

Executive Order 11988, *Floodplain Management*, states all executive agencies shall provide leadership and shall take action to reduce the risk of flood loss, to minimize the impact of floods on human safety, health and welfare and to preserve the natural and beneficial values served by

floodplains in carrying out the agency's responsibilities. The order requires agencies to avoid disrupting floodplains wherever there is a practicable alternative and minimize any environmental harm that might be caused by federal actions.

The subject site is located within the 100-year floodplain associated with the Luxapalila Creek, which forms the eastern boundary of the property. Maps from the Federal Emergency Management Agency show the Luxapalila Creek lies within the 100-year flood zone of the Tennessee Tombigbee Waterway (U.S. Army Corps of Engineers, 2007). Surface elevations at Luxapalila Creek range from 148 to 152 feet above mean sea level.

#### Fish and Wildlife

Under the existing law, lawsuits and other regulatory actions can be brought upon parties that are thought to be involved with damage to natural resources, including wildlife populations or their habitats. Direct ingestion of lead shot or ammunition is the most probable exposure pathway for wildlife. Birds and animals feeding on earthworms, soil insects, fallen seeds and other foods at the surface of the soil can mistakenly eat ammunition. Lead shot or ammunition in the soil that has weathered can be absorbed by plants and may accumulate in roots, leaves, seeds and other parts that may be eaten by birds or animals. Exposure via ingestion of contaminated soil is considered a secondary risk for most animals; however this pathway may be more significant for terrestrial invertebrates, aquatic benthic organisms and small mammals that may have a considerable area of their territories on the shot fall or impact area of a range.

The National Recommended Water Quality Criteria lists lead, copper and zinc as Priority Toxic Pollutants. Iron is listed as a Non-Priority Toxic Pollutant. Lead, copper and zinc are toxic to aquatic organisms at low concentrations. A 1994 USEPA Report indicated that copper and zinc are more toxic to aquatic organisms (fish, crustaceans, worms and algae). The report state tungsten had a low toxicity to aquatic organisms. The toxicity of iron was not indicated [Toxics Use Reduction Institute (TURI), 2006].

#### *Fish*

The east side of the CPD Firing Range is bounded by the Luxapalila Creek. Fish populations in the Luxapalila Creek have remained in a steady state. Studies indicate that the fish diversity within the modified portions of Luxapalila Creek is improving (Arner et al., 1976; Schultz 1971). Currently, the Southern walleye (*Sanders Vitreus*) is one of the fish species whose population is improving. However, the population of Gulf Coast (of Mexico) walleyes, also present in Luxapalila Creek, is declining (Vanderkooy and Peterson, 1998). The Mississippi Department of Wildlife, Fisheries and Parks (MDWFP) and the United States Fish and Wildlife Service (USFWS) are concerned about the walleye population in northeast Mississippi and attempts are being made to use walleyes captured from the Luxapalila Creek to establish a stocking program for suitable streams in other areas.

Other important sport fish species in Luxapalila Creek include the blue gill (*Lepomis macrochirus*), crappie (*Pomoxis annularis*), channel catfish (*Ictalurus punctatus*), longear sunfish (*Lepomis megalotis*) and spotted bass (*Micropterus punctulatus*). Important non-game fish species in Luxapalila Creek include the creek chub (*Semotilus atromaculatus*), frecklebelly madtom (*Noturus munitus*), shiners, minnows and suckers.

#### *Wildlife*

Mississippi gives rise to a diverse and abundant wildlife population. Over 396 species of birds, 63 species of land mammals (including introduced species), 212 species of fish, 71 species of reptiles and 60 species of amphibians inhabit the state's ecologically diverse regions [Biology Base (Mississippi Index), 2007].

Concerning the location of the subject site, few changes have occurred to diversity and population levels between the areas of Columbus and Steens, Mississippi (approximately 10 miles northeast from Columbus). Due to habitat preservation along the Luxapalila Creek, small mammals, furbearers, songbirds, reptiles and amphibians remain abundant. Agricultural, commercial and residential developments have intensified around Luxapalila Creek but primarily occur in areas of the highest elevation. Therefore, frequently flooded and wetland areas remain as wildlife habitat.

#### Rare, Threatened or Endangered Species

The Endangered Species Act (ESA) of 1973, 16 U.S.C. 1531-1547, et. seq., last amended in October 1988, prohibits the importation, exportation, taking and commercialization in interstate or foreign commerce of fish, wildlife and plants that are listed as threatened or endangered species. Under the ESA, all Federal agencies must seek to conserve endangered and threatened species and must use their authorities to further the purpose of this act. They are required to ensure that any and all actions they authorize, fund or carry out are not likely to jeopardize the continued existence of threatened or endangered species or adversely modify or destroy their critical habitat.

The east side of the CPD Firing Range is bounded by the Luxapalila Creek. According to the USFWS, the Luxapalila Creek is home to several federally protected mussel species that could be found or were historically found. These include the threatened ovate clubshell (*Pleurobema perovatum*), the endangered southern clubshell (*Pleurobema decisum*), the threatened Alabama moccasinshell (*Medionidus acutissimus*), the threatened orange-nacre mucket (*Lampsilis perovalis*), the endangered heavy pigtoe mussel (*Pleurobema taitianum*) and the endangered southern combshell (*Pleurobema penita*).

### **3.6 Infrastructure**

#### **3.6.1 Definition of Resource**

Infrastructure is defined as the physical and operational structures needed to operate a society or the services and facilities needed for an economy to function. These structures include transportation (roads), energy (electrical, heat, natural gas and petroleum) water management (drinking water, sewage and drainage), communications (telephone and cable networks), waste management (solid waste and hazardous waste) and geophysical (weather).

#### **3.6.2 Existing Condition**

Since the mid-1950s, the CPD and Lowndes County Sheriff's Department have operated the facility (3.4 acres) as a firing range for officer and special unit qualification training and firearm accuracy training. Over thirty law enforcement agencies, military agencies and private citizens have used the CPD Firing Range since it started operations. Small arms up to 50 caliber rounds and shotgun shot and slugs (primarily 12 gauge) have been discharged at the facility. Additionally, riot charges, smoke canisters and rifle-fired canisters have been used during training exercises. All of these have been discharged within the confines of the firing range, which has soil berms on three sides (west, east and south). Annually, an estimated 97,400 lead rounds are expended by non-CAF&B personnel.

Currently, the CPD Firing Range is supplied with municipal utilities (water, sewer and stormwater), electrical service, telecommunications and solid waste disposal. Utility easements are located on the north and west sides of the CPD Firing Range.

Columbus has two U.S. highways (82 and 45) and four state highways (12, 50, 69 and 182). The current address of the CPD Firing Range is listed as 203 Martin Luther King, Jr., Drive South (MLK Drive S), Columbus, MS 39701. State highway 182 runs east and west approximately 0.2 miles north of the CPD Firing Range.

### **3.7 Land Use**

#### **3.7.1 Definition of Resource**

Land use is the human change of a natural environment into a setting for human activity. Land use impacts natural resources such as water, soil, nutrients, plants and animals. Effects of land use has included deforestation (logging and burning of trees in forest areas), urban sprawl (spread of a city and suburbs over a rural land), soil erosion (physical or chemical breakdown of minerals, soil, sediments and rock), soil degradation (loss of soil stability), salinization (excess accumulation of salt in soil) and desertification (loss of land in hot, humid areas). The purpose of compatible land use is to provide support to sustain and provide flexibility to military missions on the installation, while directing the long-term land use needs of neighboring communities.

### 3.7.2 Existing Condition

The current subject site is part of a large tract (over 100 acres) that has been used for a number of municipal and county needs. Views south along MLK Jr., Drive include a detention center, county offices, Hogan's Alley (designed as a style of urban firing line and consists of moving targets behind building silhouettes) and a wastewater treatment plant (further south). Views north toward the intersection of College St. and MLK Jr., Drive S include a residential area, Sandfield Cemetery and small commercial businesses, including a gas station and a sheet metal fabricating business. Views toward the east of the subject site include heavily wooded areas with moderate to heavy understory all the way to the Luxapalila Creek bank. Views west across MLK Jr., Drive S include a residential area.

## 3.8 Socioeconomic and Environmental Justice

### 3.8.1 Definition of Resource

Socioeconomic data describes the basic attributes of population and economic activity within a particular area and typically encompasses population, employment and income and industrial/commercial growth.

Executive Order 12898, 11 February 1994, requires federal agencies to identify and address disproportionately high and adverse human health or environmental effects of its programs, policies and activities on minority and low-income populations. Environmental justice exists when environmental risks, hazards, investments and benefits are equally distributed with a lack of discrimination, whether direct or indirect, at any jurisdictional level. In addition, when all enjoy access to information, participate in decision-making and have access to justice in environment-related matters.

### 3.8.2 Existing Condition

#### Total Population

The estimated total population for Lowndes County was 59,896 in 2008. The estimated total population for the city of Columbus in 2007 was 24,213. The population density is estimated to be 1,114 per square mile. Currently, approximately 12,880 African-Americans (54.5%), 10,423 Caucasians (44.1%), 286 Hispanics (1.2%), 136 Asians (0.6%), 26 American Indian, Eskimo, Aleuts (0.1%) and 148 Other (.6%) reside in Columbus, MS.

The Columbus-Lowndes Development Link (Mississippi) prepared a 2008 Demographic Detail Comparison Report (DDR) that measured the population distribution within a one to five mile radius of the subject site. Within one mile of the subject site, the total estimated population is 5,006. The population density is estimated to be 1,593.5 per square mile. Currently, approximately 3,299 African-Americans (65.9%), 1,602 Caucasians (32.0%), 60 Hispanics

(1.2%), 25 Asians (0.5%), 5 American Indian, Eskimo, Aleuts (0.1%), 5 Hawaiian/Pacific Islanders (0.1%) and 70 Other (1.4%) reside within one mile of the subject site.

### Housing

Data indicate that 2,312 housing units are located within a one-mile radius of the subject site. Of the total housing units, 754 (32.6%) are owner occupied, 1,184 (51.2%) are renter occupied and 375 (16.2%) are vacant housing units.

### Income

The average household income within a one-mile radius of the subject site is \$43,956, and the median household income is \$25,579. The percentage (%) household income was also included in the DDR 2008. Individuals with the highest income (150,000+) make up 4.4% of households, and individuals with the lowest income (\$0 to \$9,999) make up 26.3% of households within a one-mile radius. Other individuals for (%) household income ranges were also included in the study, but individuals with incomes ranging from \$0 to \$9,999 make up the highest statistic.

### Education

Data indicate that the total population of individuals over 25 within a one-mile radius of the subject site is 2,711 (DDR 2008). For educational attainment, approximately 277 (10.2%) have a K-8 education, 458 (16.9%) have a 9-12 education, 731 (27.0%) are high school graduates, 805 (29.7%) have some form of a college degree (associates, bachelors, graduate), 439 (16.2%) have some college education but no degree.

## 3.9 Hazardous Materials and Waste Management

### 3.9.1 Definition of Resource

Hazardous materials and hazardous waste are defined and categorized as substances with properties of ignitability, corrosivity, reactivity, concentration or toxicity. These properties may cause or contribute significantly to an increase in mortality, severe irreversible illness or pose a substantial threat to human health or the environment. Hazardous materials must be used and managed in a particular way to safeguard the public health and the environment.

### 3.9.2 Existing Conditions

In 2008, Weston Solutions, Inc. conducted a Phase I and Phase II Environmental Baseline Survey (EBS) at the subject site. Data gathering activities consisted of available documentation (record searches) provided by Environmental Data Resources, Inc., a visual site inspection (VSI) that included driving and walking the property, a visual reconnaissance survey (VSR) of immediately surrounding properties and interviews with current landowners and/or persons with direct knowledge of the subject property. The existing landowners (Lowndes County, MS) have owned the subject property for over 60 years.

## Hazardous Materials

Significant quantities of hazardous materials have not been used, stored or disposed of at the subject site. Currently, gasoline-powered lawn equipment and all-terrain vehicles are used or stored on the property for use in property maintenance. Additionally, small quantities of solvents, cleaners and pesticides, all in original containers, are stored in the Range Office/Maintenance building. The materials are used for firearm maintenance, yard maintenance, cleaning and weed control.

## Hazardous Waste and Petroleum Products

Hazardous and petroleum wastes have not been stored or disposed of at the subject site. Vehicle maintenance is completed through the CPD vehicle maintenance department and is not conducted on the subject property.

## Asbestos

Asbestos-containing materials are present within associated facilities on the subject site. These consist of floor tiles, ceiling tiles, joint compound on drywall systems, transite panels and mastics used on components such as baseboards. An asbestos survey has not been completed for the associated facilities.

## Lead-Based Paint

Lead-based paint may be present at the facility. The CPD Firing Range was constructed in the mid-1950s, before lead was banned for residential use in 1978 by the U.S. Consumer Product Safety Commission (16 CFR 1303). Soils on the subject site may contain lead from peeling, chapping or cracking of exterior paint and lead dust may be produced when lead-based paint is scraped, dry sanded or heated.

## Solid Waste

Solid waste disposal activities occur at the CPD Outdoor Firing Range. One commercial dumpster used by the facility is present along the south boundary near the entrance driveway. At the CPD Firing Range, shell casings (brass, aluminum or steel) are picked up and deposited into cardboard containers on-site and are recycled on a regular basis. Spent smoke or gas canisters are also picked up and disposed of in accordance with the manufacturer's recommendations.

After firing, CAFB personnel collect brass shell casings from their ammunition. The shell casings are transported in the Combat Arms trailer to Munitions at CAFB. Brass shell casings then undergo inspection, certification and shipment to the Defense Reutilization and Marketing Office (Anniston Army Depot, AL). Munitions personnel (CAFB) state that there are minimal dangers associated with the transport of live ammunition or shell casings between CAFB and the CPD Firing Range.

### **3.10 Safety and Occupational Health**

#### **3.10.1 Definition of Resource**

Occupational health and safety refers to the legislation, policies, procedures and activities that aim to protect the health, safety and welfare of all people at the workplace.

#### **3.10.2 Existing Condition**

A risk assessment of the CPD Firing Range was conducted on July 13, 2007. The team of inspectors included CAFB personnel from Environmental, Bioenvironmental Engineering, Real Property, Security Forces and Safety. The Headquarters Air Force Security Forces Center (HQ AFSFC) Small Arms Firing Range Operational Risk Management (ORM) Checklist was used as a baseline for determination of compliance. The following items did not comply within the checklist:

- a. Item 35: An excessive lead test has not been conducted within the last 12 months.
- b. Item 42: The surface danger zone does not equal to 100 percent of the maximum range of the most powerful ammunition authorized for the range.
- c. Item 45: The vertical danger zone does not meet the minimal required height for the most powerful ammunition used.
- d. Item 47: Fences are not placed to prevent unauthorized access into the firing range complex.
- e. Item 49: The maximum range/caliber of the most powerful ammunition authorized for use on the firing range is not clearly posted for all personnel to see.
- f. Item 75: The individual range positions do not meet the 4 or 5 feet from center to center requirement.

Existing risks of the CPD Firing Range include risk of injury to persons outside of the firing range and risk of ground safety mishaps and discrepancies.

## **CHAPTER 4: ENVIRONMENTAL CONSEQUENCES**

Resource analyses presented in this section are based on an examination of the potential effects of the Proposed Action and the No-Action Alternative (described in Chapter 2) on existing environmental conditions (described in Chapter 3). The discussion of potential environmental consequences follows the sequence of existing environmental conditions presented in Chapter 3.

### **4.1 Noise**

#### **4.1.1 Approach to Analysis**

Noises from proposed and existing firing ranges are inevitable. Elevated noise levels near noise-sensitive land uses (e.g., schools, residential areas) can result in public annoyance, damage claims and legal action. A community's reaction to the sounds of firing can be influenced by its attitude toward the range and whether or not firing sounds are perceived by neighbors as unwanted noise. The location of the CPD Firing Range is within a one mile radius of small commercial businesses and a residential area. According to the 2005 Technical Guideline, at one kilometer (0.62 miles) from a firing range the sound level can be 60 to 70 dBA (ITRC, 2005).

The USEPA and the US Air Force rely on the Schultz Curve, to predict human annoyance response (Fidell, 2003). Based on the Schultz Curve, approximately 25% of people are highly annoyed by noise levels of 70 (dBA). In comparison, at noise levels of 80 dBA and above, the annoyance level increases to approximately 50 to 70%. A firing range near noise-sensitive land uses (e.g., schools and residential areas) would have a significant impact on the noise environment when not managed responsibly, and the design of the firing range does not minimize the potential for objections to the noise produced.

A noise survey for the subject property was not conducted for this EA, and previous noise surveys for the subject property could not be identified. Environmental noise can also adversely affect wildlife, but standards or programmatic methodologies used to address these noise impacts were not historically or currently conducted.

#### **4.1.2 Impacts of the Proposed Action**

Under the proposed action, minimal impacts to the noise environment near the subject site are anticipated to occur. Since the mid-1950s, the CPD and Lowndes County Sheriff's Department have operated the facility as a firing range for officer and special unit qualification training and firearm accuracy training. Noise levels produced by CAFB personnel would be typical of the standard activities that have occurred at the firing range and would remain compatible with the original design of the firing range. Combat arms training would occur one day a week (Monday) during normal working hours (between 8:00 A.M. and 5:00 P.M.). Small firearms used by CAFB personnel at the subject site remain compatible with weapons fired by law enforcement agencies, military facilities and private citizens that have used the firing range. Previously and

currently, residents and commercial businesses have located to the area despite the presence of the firing range.

#### 4.1.3 No-Action Alternative

Under the No-Action Alternative, CAFB would discontinue using the CPD Firing Range to accomplish combat arms training. A reduced impact to noise levels would occur as the result of the implementation of the No-Action Alternative.

### 4.2 Geological Resources

#### 4.2.1 Approach to Analysis

The protection of geological features, minimization of soil erosion and the location of facilities relative to geologic hazards are considered when evaluating impacts of a proposed action. Soil samples were collected to assess the lead concentration of surface soils located both on the CPD Firing Range and in six background areas within the property boundary. The objective of the EBS was to determine the extent, if any, of lead contamination at the subject site and estimate the quantity of lead contamination contributed by CAFB from March 2006 through July 2006. In August 2006, CAFB replaced lead ammunition with frangible (lead-free) ammunition.

Fifty composite soil samples were collected in accordance with the CAFB Work Plan (2006), developed by Weston Solutions, Inc. Soil samples were collected under the direction of a Mississippi-licensed lead inspector. As part of Phase II of the EBS, a visual inspection around the perimeter of the CPD Firing Range and range berm were performed to determine the potential horizontal and vertical limits of lead contamination in soils from the surface to depths of 24 inches. Hand augers were used to collect samples at depth. A grid sampling system was used to establish sample locations at the site and assist in characterizing the vertical and horizontal extent of lead levels at the firing range. Soil samples were analyzed for total lead using USEPA Method SW846-6010B. Three assumptions were considered when determining the % CAFB contribution to lead contaminated soils at the CPD Firing Range: the lead contribution from each spent lead shot was equal (regardless of type or caliber), the range supervisor provided the most accurate estimation of lead shot use data for non-CAFB personnel (estimation of range users, frequency of range users and rounds expended per use) and 14 MSG/SFS provided the most accurate estimation of lead shot use data for CAFB personnel.

#### 4.2.2 Impacts of the Proposed Action

##### Lead Ammunition

Studies show that over time, spent lead shot in the environment is transformed into particulate and molecular lead species that accumulate in soils. Low soil pH mobilizes lead in soil; therefore, increasing its availability to plants (Scheuhammer and Norris, 1985). The accumulation of lead in plants can result in lowered biomass production and death (NSF, 1980)

CAFB's contribution of lead rounds to the subject site was calculated to be approximately 0.264% from March 2006 to July 2006. The percentage was calculated by dividing the number of rounds expended by CAFB personnel (1,800 rounds) by the total number of rounds expended by non-CAFB personnel during a seven-year period (681,800 rounds). The overall lead contribution of non-CAFB personnel was calculated by multiplying the number of rounds expended per year (97,400) by the estimated age in years (7) of the current berm.

Minimal impacts to geological resources at the CPD Firing Range occurred from activities of CAFB personnel. To maintain the validity and relevance of the calculated (%) CAFB contribution to lead contaminated soils at the CPD Firing Range, CAFB personnel would continue to exclusively use lead-free frangible ammunition during combat arms training at the CPD Firing Range.

#### Frangible Ammunition

Some components used in the manufacturing of frangible ammunition include copper, tin, tungsten, iron and zinc. Environmental impact considerations for long-term use of frangible projectiles include the release of lead-free metals and the inability to recover intact projectiles in the environment (ITRC, 2005). Specific information on the bioaccumulation of copper, tin, tungsten, iron and zinc is not available. Currently, the EPA is developing a framework that will address the issue of bioaccumulation of metals and bioavailability (TURI, 2006). In addition, scientific research on bullet design of frangible ammunition is ongoing.

Under the proposed action, minimal impacts to geological resources at or near the subject site are anticipated to occur. Frangible ammunition components will be released into the environment as a result of the proposed action; however, the limited use of the firing range should minimize the likely potential for significant impacts to geological resources occurring. CAFB personnel use the CPD Firing Range one day a week (Monday) during normal working hours (between 8:00 A.M. and 5:00 P.M.). CAFB will enter a five-year temporary real estate license agreement to use the CPD Firing Range and have a programmed project to construct an indoor firing range on CAFB. Long-term use of the CPD Firing Range is not anticipated.

#### Interaction of Lead and Frangible Ammunition

CAFB personnel currently use frangible ammunition during combat arms training. The total of lead rounds expended by non-CAFB personnel is 97,400 rounds annually. It has been indicated that at firing ranges where both lead and lead-free ammunition is used, lead-free ammunition (e.g., zinc ammunition) may contaminate lead, making lead unsuitable for recycling (TURI, 2006). Results from Dermatas et. al (2004) showed the presence of copper (from frangible ammunition) increases the solubility and corrosion potential of lead inducing the formation of hydrocerussite and cerussite (secondary minerals).

Under the proposed action, minimal impacts to geological resources at or near the subject site are anticipated to occur. Berms at the CPD Firing Range have undergone repair/revitalization on several occasions. The berms are repaired/revitalized by removing the top three to five feet of soil in the primary firing line and replacing it with new soil and grass. Also, the limited use of the firing range should minimize the likely potential for significant impacts to geological resources. CAFB personnel use the CPD Firing Range one day a week (Monday) during normal working hours (between 8:00 A.M. and 5:00 P.M.). CAFB will enter a five-year temporary real estate license agreement to use the CPD Firing Range. Long-term use of the CPD Firing Range is not anticipated.

#### 4.2.3 No-Action Alternative

Under the No-Action Alternative, CAFB would discontinue using the CPD Firing Range to accomplish combat arms training. A reduced impact to geological resources or soils would occur as the result of the implementation of the No-Action Alternative.

### 4.3 Water Resources

#### 4.3.1 Approach to Analysis

Depending on the depth of groundwater, climate, soil chemistry or proximity to surface water at a range, contaminants can reach groundwater or surface waters. Close proximity to either surface or groundwater sources is considered a high risk factor for increasing the chances of lead mobility and transport from sites contaminated with lead shot. The close proximity of the subject property to Luxapalila Creek allows it to contribute to surface runoff during rain events to the municipal stormwater drainage system. This in turn, is discharged to Luxapalila Creek.

Water testing and sampling were not conducted for this EA, and reports from previous water tests and samples for the subject property could not be identified.

#### 4.3.2 Impacts of the Proposed Action

##### Lead Ammunition

Lead can enter the ecosystem through automobile emissions, paint chips, used ammunition, fertilizers, pesticides and industrial products. Movement of lead into groundwater usually occurs only when groundwater is acidic. Movement of lead into surface water or sediment occurs when lead-containing dust from the atmosphere is deposited, waste water from industry producers (lead producers) reach surface water and urban runoff happens. Urban runoff is defined as the sum of surface runoff and sub-surface runoff. Surface runoff occurs when soil reaches its maximum saturation level, and excess water from rain, snowmelt or other sources flows over the ground. When surface runoff flows over the ground, it can pick up soil contaminants such as lead, petroleum or pesticides, this in turn, will flow into creeks, streams and rivers during periods

of rain events. The transport of these chemicals into the water system causes risks to human health, ecosystem disturbance and impacts drinking water aesthetics (odor, color and turbidity).

CAFБ's contribution of lead rounds to the subject site was calculated to be approximately 0.264% from March 2006 to July 2006. The percentage was calculated by dividing the number of rounds expended by CAFБ personnel (1,800 rounds) by the total number of rounds expended by non-CAFБ personnel during a seven-year period (681,800 rounds). The overall lead contribution of non-CAFБ personnel was calculated by multiplying the number of rounds expended per year (97,400) by the estimated age in years (7) of the current berm. The small percentage of lead rounds to the subject site indicates that CAFБ had a minimal contribution to lead-contaminated surface runoff during rain events. To maintain the validity and relevance of the calculated % CAFБ contribution to lead contaminated soils at the CPD Firing Range, CAFБ personnel would continue to exclusively use lead-free frangible munitions during combat arms training at the CPD Firing Range.

#### Frangible Ammunition

Environmental impact considerations for long-term use of frangible projectiles include the release of other heavy metals and the inability to recover intact projectiles in the environment (ITRC, 2005). Copper, tin, tungsten, iron and zinc powder have all been successfully used in the production of frangible ammunition. Studies on the effects of frangible ammunition on ground water resources are not widely prevalent. It is known that copper, some tungsten compounds, organic tin and some iron compounds (ferric) are insoluble in water. In the environment, most insoluble metals can readily attach to soils and sediments. During rain events, contaminated soil pollutants can be transported to creeks, streams and rivers. The accumulation of metals in soils and transport to water systems is harmful to aquatic plants and animals. From 1999-2006, 5.56 mm tungsten/nylon ammunition was used at Camp Edwards (Cape Cod, Massachusetts) until it was discovered that tungsten was migrating through soil and the base's primary source of drinking water (TURI, 2006). The threshold for tungsten ingestion in humans remains unclear, but research has indicated that tungsten is toxic to animals.

Under the proposed action, minimal impacts to water resources in the vicinity of the subject site are anticipated to occur. Frangible ammunition components will be released into the environment as a result of the proposed action; however, limited use of the firing range should minimize the likely potential for significant impacts to water resources occurring. CAFБ personnel use the CPD Firing Range one day a week (Monday) during normal working hours (between 8:00 A.M. and 5:00 P.M.). CAFБ will enter a five-year temporary real estate license agreement to use the CPD Firing Range; therefore, long-term use of the CPD Firing Range will not occur, and the construction of an indoor firing range at CAFБ is programmed to be completed within the next seven to ten years. Also, CAFБ personnel will continue using weapons and ammunition compatible with the original design of the firing range.

### Interaction of Lead and Frangible Ammunition

As stated earlier, results from Dermatas et. al (2004) showed the presence of copper increases the solubility and corrosion potential of lead inducing the formation of hydrocerussite and cerussite (secondary minerals). However, studies on the synergistic effect of lead and frangible ammunition at an outdoor firing range are not widely prevalent.

Under the proposed action, minimal impacts to water resources in the vicinity of the subject site are anticipated to occur. Berms at the CPD Firing Range have undergone repair/revitalization on several occasions (last repair 2001). The berms are repaired/revitalized by removing the top three to five feet of soil in the primary firing line and replacing it with new soil and grass. Also, the limited use of the firing range should minimize the likely potential for significant impacts to water resources. CAFB personnel use the CPD Firing Range one day a week (Monday) during normal working hours (between 8:00 A.M. and 5:00 P.M.). CAFB will enter a five-year temporary real estate license agreement to use the CPD Firing Range; therefore, long-term use of the CPD Firing Range will not occur. CAFB personnel will also continue using weapons and ammunition compatible with the original design of the firing range.

#### 4.3.3 No-Action Alternative

Under the No-Action Alternative, CAFB would discontinue using the CPD Firing Range to accomplish combat arms training. A reduced impact to water resources would occur as the result of the implementation of the No-Action Alternative.

### 4.4 Biological Resources

#### 4.4.1 Approach to Analysis

Close proximity to biological resources is considered a high risk factor for increasing the chances of lead mobility and transport from sites contaminated with lead shot. Analysis for biological resources included examining the presence of biological resources within the proximity of the subject site and determining if significant impacts from the proposed action would potentially occur.

#### 4.4.2 Impacts of the Proposed Action

### Wetlands

Under the proposed action, minimal impacts to the wetland area near the subject site would occur. The use of the CPD Firing Range by CAFB personnel would stay within the footprint of the firing range and would not significantly impact wetland function in the surrounding areas.

## Floodplains

Under the proposed action, minimal impacts to the 100-year floodplain in the vicinity of the subject site would occur. The use of the CPD Firing Range by CAFB personnel would increase the quantity of spent ammunition deposited on the soils; however, limited use of the firing range should minimize the likely potential for significant impacts to the floodplain. CAFB personnel use the CPD Firing Range one day a week (Monday) during normal working hours (between 8:00 A.M. and 5:00 P.M.) to perform weapons qualification. The AETC Supplement to 32 CFR 989.14(g)(1)(ii) provides that a Finding of No Practicable Alternative (FONPA) is not required when a proposal in a wetland or floodplain is only for routine operations. Since CAFB would use weapons and ammunition that are compatible with the CPD Firing Range, the proposed action would constitute routine operations for the facility and no FONPA is required.

## Fish and Wildlife

### *Lead Ammunition*

The small percentage of lead rounds to the subject site indicates that CAFB had a minimal impact to the existing fish and wildlife conditions in the vicinity of the CPD Firing Range. CAFB's contribution of lead rounds to the subject site was calculated to be approximately 0.264% From March 2006 to July 2006. The percentage was calculated by dividing the number of rounds expended by CAFB personnel (1,800 rounds) by the total number of rounds expended by non-CAFB personnel during a seven-year period (681,800 rounds). The overall lead contribution of non-CAFB personnel was calculated by multiplying the number of rounds expended per year (97,400) by the estimated age in years (7) of the current berm. To maintain the validity and relevance of the calculated % CAFB contribution to lead contaminated soils at the CPD Firing Range, CAFB personnel would continue to exclusively use lead-free frangible munitions during combat arms training at the CPD Firing Range.

### *Frangible Ammunition*

Under the proposed action, minimal impacts to wildlife and fish species near the subject site are anticipated to occur. Frangible ammunition components will be released into the environment as a result of the proposed action; however, limited use of the firing range should minimize the likely potential for significant impacts to wildlife and fish species. CAFB personnel use the CPD Firing Range one day a week (Monday) during normal working hours (between 8:00 A.M. and 5:00 P.M.). CAFB will enter a five-year temporary real estate license agreement to use the CPD Firing Range; therefore, long-term use of the CPD Firing Range will not occur, and the construction of an indoor firing range at CAFB is programmed to be completed within the next seven to ten years. Also, CAFB personnel will continue using weapons and ammunition compatible with the original design of the firing range. Additional scientific research on both bullet design and alternative materials is ongoing.

### *Interaction of Lead and Frangible Ammunition*

Under the proposed action, minimal impacts to wildlife and fish species in the vicinity of the subject site are anticipated to occur. Berms at the CPD Firing Range have undergone repair/revitalization on several occasions (last repair 2001). The berms are repaired/revitalized by removing the top three to five feet of soil in the primary firing line and replacing it with new soil and grass. Also, the limited use of the firing range should minimize the likely potential for significant impacts to wildlife and fish species. CAFB personnel use the CPD Firing Range one day a week (Monday) during normal working hours (between 8:00 A.M. and 5:00 P.M.). CAFB will enter a five-year temporary real estate license agreement to use the CPD Firing Range; therefore, long-term use of the CPD Firing Range will not occur. CAFB personnel will also continue using weapons and ammunition compatible with the original design of the firing range.

### Rare, Threatened or Endangered Species

#### *Lead Ammunition*

The small percentage of lead rounds to the subject site indicates that CAFB had a minimal impact to the existing fish and wildlife conditions in the vicinity of the CPD Firing Range. From March 2006 to July 2006, CAFB's contribution of lead rounds to the subject site was calculated to be approximately 0.264%. The percentage was calculated by dividing the number of rounds expended by CAFB personnel (1,800 rounds) by the total number of rounds expended by non-CAFB personnel during a seven-year period (681,800 rounds). The overall lead contribution of non-CAFB personnel was calculated by multiplying the number of rounds expended per year (97,400) by the estimated age in years (7) of the current berm. To maintain the validity and relevance of the calculated % CAFB contribution to lead contaminated soils at the CPD Firing Range, CAFB personnel would continue to exclusively use lead-free frangible munitions during combat arms training at the CPD Firing Range. Under the proposed action, it is unlikely that the activities involved with CAFB actions resulted in any significant impacts to rare, threatened or endangered species in the surrounding area.

#### *Frangible Ammunition*

Under the proposed action, minimal impacts to rare, threatened or endangered species near the subject site are anticipated to occur. Frangible ammunition components will be released into the environment as a result of the proposed action; however, limited use of the firing range should minimize the likely potential for significant impacts to rare, threatened or endangered species. CAFB personnel use the CPD Firing Range one day a week (Monday) during normal working hours (between 8:00 A.M. and 5:00 P.M.). CAFB will enter a five-year temporary real estate license agreement to use the CPD Firing Range; therefore, long-term use of the CPD Firing Range will not occur. Currently, the construction of an indoor firing range at CAFB is a programmed project to be completed within the next seven to ten years. Also, CAFB personnel

will continue using weapons and ammunition compatible with the original design of the firing range.

The USFWS will be contacted for concurrence that no rare, threatened or endangered species will be impacted by the proposed action.

#### 4.4.3 No-Action Alternative

Under the No-Action Alternative, CAFB would discontinue using the CPD Firing Range to accomplish combat arms training. A reduced impact to biological resources would occur as the result of the implementation of the No-Action Alternative.

### 4.5 Infrastructure

#### 4.5.1 Approach to Analysis

Analysis for infrastructure included assessing the significant impact of the proposed action on the design and capacity of the CPD Firing Range to support CAFB personnel, the municipal utilities supplied to the firing range and the impact of the proposed action on highways and traffic volume.

#### 4.5.2 Impacts of the Proposed Action

Under the proposed action, minimal impacts to infrastructure are anticipated to occur. CAFB personnel use the CPD Firing Range one day a week (Monday) during normal working hours (between 8:00 A.M. and 5:00 P.M.), and the training class consists of 6 to 14 personnel. Small firearms used by CAFB personnel remain compatible with weapons fired currently and historically by law enforcement agencies, military facilities and private citizens that have used the firing range. Due to the limited use of the CPD Firing Range by CAFB personnel, no additional infrastructure would be required to support wastewater or energy requirements for the installation. The transport of CAFB personnel and weapons/ammunitions to the CPD Firing Range does not conflict with Average Daily Traffic (ADT) volumes or traffic infrastructure. Entrance to U.S. Highway 45 from CAFB is accessed via Simler Boulevard from the East Gate (Main Gate) and State Highway 373 from the South Gate. The travel distance between CAFB and the CPD Firing Range is approximately sixteen miles one-way, and the estimated travel time is thirty minutes one-way. Currently, CAFB personnel travel to the subject site either in base vehicles (two 8-passenger vans) or in their personal vehicles. Firearms and ammunition are transported in a Combat Arms trailer, which attaches to the CAFB government vehicles. Therefore, the proposed action would remain compatible with current infrastructure.

#### 4.5.3 No-Action Alternative

Under the No-Action Alternative, CAFB would discontinue using the CPD Firing Range to accomplish combat arms training. A reduced impact to infrastructure would occur as the result

of the implementation of the No-Action Alternative.

#### 4.6 Land Use

##### 4.6.1 Approach to Analysis

Currently, the CPD Firing Range is part of a large tract (over 100 acres owned by Lowndes County) that has been used for various municipal and county needs, including a detention center, Hogan's Alley, county offices and a waste water treatment plant. Other properties surrounding the subject property have developed as residential, small convenience and supply businesses. Analysis for land use included assessing the significant impact of the proposed action on the CPD Firing Range and surrounding properties.

##### 4.6.2 Impacts of the Proposed Action

###### Land Use

Under the proposed action, minimal impacts to land use are anticipated to occur. The CPD and Lowndes County Sheriff's Department have operated the facility (approximately 3.4 acres) since the mid-1950s as a shooting range for officer and special unit qualification training and firearm accuracy training. Current land use allows for compatibility with surrounding land parcels that include a detention center, county offices, Hogan's Alley (designed as a style of urban firing line and consists of moving targets behind building silhouettes) and a wastewater treatment plant (further south). Views north toward the intersection of College St. and MLK Jr., Drive S include a residential area, Sandfield Cemetery and small commercial businesses, including a gas station and a sheet metal fabricating business. Views toward the east of the subject site include heavily wooded areas with moderate to heavy understory all the way to the Luxapalila Creek bank. Views west across MLK Jr., Drive S include a residential area.

The limited use of the CPD Firing Range should minimize any potential for significant impacts to land use. CAFB personnel use the CPD Firing Range one day a week (Monday) during normal working hours (between 8:00 A.M. and 5:00 P.M.). Small firearms used by CAFB personnel remain compatible with weapons fired currently and historically by law enforcement agencies, military facilities and private citizens that have used the firing range. All combat arms training activities would remain within the footprint of the firing range. The proposed action would keep this facility compatible with historic and current land use.

##### 4.6.3 No-Action Alternative

Under the No-Action Alternative, CAFB would discontinue using the CPD Firing Range to accomplish combat arms training. A reduced impact to land use would occur as the result of the implementation of the No-Action Alternative.

## **4.7 Socioeconomic and Environmental Justice**

### **4.7.1 Approach to Analysis**

Executive Order 12898, 11 February 1994, requires federal agencies to identify and address disproportionately high and adverse human health or environmental effects of its programs, policies and activities on minority and low-income populations. There would be a disproportionately high and adverse impact on environmental justice populations if: 1) the proposed action will result in impacts that would have a negative effect on human health or the environment that is significant, unacceptable, or above generally accepted norms; and 2) the impacted area has a higher concentration of minority and low income groups than the environmental justice community of comparison. Also, socioeconomic impacts would be considered significant if the proposed action resulted in a substantial shift in population trends or notably affected regional employment, spending and earning patterns or community resources.

### **4.7.2 Impacts of the Proposed Action**

Currently, African Americans (65.9%) and individuals with incomes from \$0 to 9,999 (26.3%) make up the highest demographic within a one-mile radius of the CPD Firing Range. They are impacted by the use of the firing range and are therefore home to an Environmental Justice population. Also, as noted elsewhere in this document, CAFB's use of the firing range will not result in significant environmental impacts. Under the proposed action, minimal impacts to the local economy near the subject site are anticipated to occur. The CPD and Lowndes County Sheriff's Department have operated the facility (approximately 3.4 acres) since the mid-1950s as a shooting range for officer and special unit qualification training and firearm accuracy training. All activities conducted by CAFB personnel at the CPD Firing Range would stay within the footprint of the firing range. CAFB personnel would use the firing range one day a week (Monday) during normal working hours (between 8:00 A.M. and 5:00 P.M.). Also, use of the CPD Firing Range by CAFB personnel would not create visible changes to the subject site. Because there would be no significant adverse environmental impacts, no further environmental justice analysis is required. See Air Force Guide for Environmental Justice Analysis with the Environmental Impact Analysis Process (EIAP), November 1997.

### **4.7.3 No-Action Alternative**

Under the No-Action Alternative, CAFB would discontinue using the CPD Firing Range to accomplish combat arms training. No significant impact to socioeconomics and environmental justice would occur as the result of the implementation of the No-Action Alternative.

## **4.8 Hazardous Materials and Waste Management**

### **4.8.1 Approach to Analysis**

Analysis for hazardous materials and waste management included analyzing significant impacts that would result from generation of hazardous waste that could not be accommodated by the current management system and release of hazardous materials that could contaminate soil, surface water or groundwater.

#### 4.8.2 Impacts of the Proposed Action

Minimal impacts of hazardous material at or near the subject site are anticipated to occur. Weapons used by CAFB personnel would not be cleaned at the CPD Firing Range. They would be cleaned at a designated cleaning area at CAFB, and any solvents or other cleaning materials would be disposed of in accordance with state, local and federal laws, ordinances and regulations. Also, neither hazardous materials nor ammunition would be stored at CPD Firing Range. After firing, CAFB personnel collect brass shell casings (scrap metal) from their ammunition. The shell casings are transported in the Combat Arms trailer to Munitions at CAFB. Brass shell casings then undergo inspection, certification and shipment to the Defense Reutilization and Marketing Office (Anniston Army Depot, Anniston, AL). Munitions personnel (CAFB) state that there are minimal dangers associated with the transport of live ammunition or shell casings between CAFB and the CPD Firing Range. Therefore, the proposed action does not involve the use, storage or disposal of hazardous waste or hazardous materials at the subject site.

Also, minimal impacts of waste generation at or near the subject site are anticipated to occur. CAFB personnel currently use frangible ammunition during combat arms training. The total of lead rounds expended by non-CAFB personnel is 97,400 rounds annually. It has been indicated that at firing ranges where both lead and lead-free ammunition is used, lead-free ammunition (e.g., zinc ammunition) may contaminate lead, making lead unsuitable for recycling (TURI, 2006). Results from Dermatas et. al (2004) showed the presence of copper (from frangible ammunition) increases the solubility and corrosion potential of lead inducing the formation of hydrocerussite and cerussite (secondary minerals). However, studies on the synergistic effect of lead and frangible ammunition at an outdoor firing range are not widely prevalent.

#### 4.8.3 No-Action Alternative

Under the No-Action Alternative, CAFB would discontinue using the CPD Firing Range to accomplish combat arms training. A reduced impact to hazardous materials would occur as the result of the implementation of the No-Action Alternative.

### 4.9 Safety and Occupational Health

#### 4.9.1 Approach to Analysis

According to a risk assessment conducted by CAFB personnel (Environmental, Bioenvironmental, Real Property, Security Forces and Safety), several items pose hazards to civilians and/or property near the subject site.

#### Occupational Noise Exposure

Impulse noise is defined as a short burst of acoustic energy consisting of either a single burst or a series of bursts. Impulse noise is a result of activities such as hammering, stamping, pressing and weapons firing (munitions noise). Studies have shown that impulse noise may be more harmful to hearing than continuous, steady state noise (Mantysolo and Vuori, 1984). AFOSH Standard 48-20 defines hazardous noise as noise having the potential to expose personnel to an 8-hour equivalent continuous A-weighted sound level (dBA) greater than 85 or continuous noise above 115 dBA. A-weighted is a decibel (dB) measurement which closely represents the manner in which a human ear responds to noise. Continuous A-weighted levels of 85 dBA, during a normal 8-hour working day, represent a risk to the unprotected ear. Continuous noise is noise extending over seconds, minutes or hours. AFOSH Standard 48-20 and OSHA Regulations 29 CFR 1910.95 also define hazardous noise as impulse or impact noise greater than 140 dB peak sound levels.

Two main weapons fired by CAFB personnel at the CPD Firing Range are the M-9 and M-16A2. The M-16 generally has higher peak noise levels than the M-9. On 25 July 2008, 14 MDOS/SGOAB obtained impulse noise measurements during weapons firing at the CPD Firing Range. Measurements were used to determine the occupational noise exposure (dBA) to CAFB personnel while utilizing hearing protection devices.

#### Occupational Air Quality

In August 2007, 14 MDOS/SGOAB conducted air sampling during weapons firing at the CPD Firing Range. Winchester ammunition with a lead-free primer and a jacketed bullet, also known as frangible lead-free ammunition, was used. Personal air sampling was performed to determine representative worker's exposure to airborne lead, copper, tungsten and respirable particulates while firing this type of ammunition from the M-16 weapon at the outdoor range. Ammonia and hydrogen cyanide were also sampled for, using direct reading instruments.

MSA Escort and SKC Air-Chek air sampling pumps were used to collect personal samples; the pumps were calibrated before and after the air sampling operation. Draeger colorimetric tubes were used to sample ammonia and hydrogen cyanide. Draeger tubes do not require calibration. Air sampling results were averaged over an eight-hour period, known as a time-weighted average, and calculated results were compared to the action level (AL) and Occupational Exposure Level (OEL). The OEL is the airborne chemical concentration to which nearly all Air Force personnel can be exposed to throughout their career without adverse health effects. The OEL is based on an 8-hour workday, 40-hour workweek. The AL is one-half of the OEL and indicates when action must be taken to reduce exposure.

#### 4.9.2 Impacts of the Proposed Action

##### CAF B Personnel

###### *Occupational Noise Exposure*

Minimal impacts to CAFB personnel would occur. During hours of firing at the range, CAFB personnel wear dual protection (E.A.R. inserts and E.A.R. muffs) and instructors wear Peltor Tactical 7 Classic earmuffs. Table 4.9.2.1 shows the noise measurements (dBA level), the attenuation value/method (a noise reduction value given based on the type of hearing protection used), the attenuated dBA (the occupational noise exposure to the operator while utilizing the listed hearing protection devices) and the hazard distance (an approximated distance at which hearing protection must be worn in order to adequately protect the employee). Noise measurements at the CPD Firing Range indicated that CAFB personnel are exposed to continuous noise levels greater than 115 dBA. However, munitions noise is “impulse noise”, and results from impulse measurements indicated that the average noise level was 125 dB (Table 4.9.2.1). This measurement is lower than the impulse noise standard of 140 dB in AFOSH Standard 48-20; therefore, the impulse noise standard applies during weapons firing. At the current dB level, CAFB personnel would be allowed unlimited exposure without the use of hearing protection. However, CAFB personnel will continue wearing dual hearing protection for added protection against occupational noise exposure.

**Table 4.9.2.1**  
**Noise Sampling Results at the CPD Firing Range**

NOISE SOURCE	dBA LEVEL	ATTENUATION VALUE/METHOD				ATTENUATED dBA				DAILY EXPOSURE TIME (MINUTES)
		1. E.A.R. Inserts	2. E.A.R. Muffs	3. Peltor Tactical 7 Classic	4. Dual Protection (E.A.R. Inserts & E.A.R. Muffs)	1	2	3	4	
Behind yellow firing line, 1st operator's position-3 rounds per magazine, single shot	122.3	27	25	24	31	95.3	97.3	98.3	91.3	360 min./wk max
Behind yellow firing line, 2nd operator's position-3 rounds per magazine, single shot	122.3	27	25	24	31	95.3	97.3	98.3	91.3	360 min./wk max
Behind yellow firing line, 3rd operator's position-3 rounds per magazine, single shot	123.1	27	25	24	31	96.1	98.1	99.1	92.1	360 min./wk max
Behind yellow firing line, 1st operator's position-6 rounds per magazine, triple shot	124.2	27	25	24	31	97.2	99.2	100.2	91.3	360 min./wk max
Behind yellow firing line, 2nd operator's position-6 rounds per magazine, triple shot	126.7	27	25	24	31	99.7	101.7	102.7	95.7	360 min./wk max
Behind yellow firing line, 3rd operator's position-6 rounds per magazine, triple shot	125.0	27	25	24	31	98	100	101	94	360 min./wk max

Behind yellow firing line, 1st operator's position-6 rounds per magazine, single shot	126.1	27	25	24	31	99.1	101.1	102.1	95.1	360 min./wk max
Behind yellow firing line, 2nd operator's position-6 rounds per magazine, single shot	127.2	27	25	24	31	100.2	102.2	103.2	96.2	360 min./wk max
Behind yellow firing line, 3rd operator's position-6 rounds per magazine, single shot	125.7	27	25	24	31	98.7	100.7	101.7	94.7	360 min./wk max

### *Occupational Air Quality*

Under the proposed action, minimal impacts to personnel air quality at the subject site are anticipated to occur. In July 2006, CAFB personnel replaced lead ammunition with frangible ammunition. Air sampling results (August 2007) indicated that during weapons firing, CAFB personnel are not exposed to contaminants (copper, tungsten, particulates, lead, ammonia and hydrogen cyanide) above the AL (Table 4.9.2.2). Therefore, no occupational overexposures exist at this time under the current operating conditions. To maintain the validity and relevance of the calculated results, CAFB personnel will continue to use the CPD Firing Range one day a week (Monday) during normal working hours (between 8:00 A.M. and 5:00 P.M.). During combat arms training, the CPD Firing Range is closed to all non-CAFB personnel. Therefore, there are no potential air quality impacts to non-AF shooters.

**Table 4.9.2.2**  
**Air Sampling Results at the CPD Firing Range**

<b>Sample Number</b>	<b>Area/Person Monitored</b>	<b>Contaminant</b>	<b>Sample Results</b>	<b>Action Level</b>	<b>OEL</b>
SZ070243	Booth 4 - Personnel #1	Tungsten	<0.007 mg/m <sup>3</sup>	2.5 mg/m <sup>3</sup>	5 mg/m <sup>3</sup>
SZ070244	Booth 5 - Personnel #2	Tungsten	<0.0069 mg/m <sup>3</sup>	2.5 mg/m <sup>3</sup>	5 mg/m <sup>3</sup>
SZ070245	Booth 6 - Personnel #3	Tungsten	<0.0070 mg/m <sup>3</sup>	2.5 mg/m <sup>3</sup>	5 mg/m <sup>3</sup>
SZ070248	Booth 4 - Personnel #1	Copper	0.0097 mg/m <sup>3</sup>	0.5 mg/m <sup>3</sup>	1 mg/m <sup>3</sup>
		Lead	<0.000044 mg/m <sup>3</sup>	0.025 mg/m <sup>3</sup>	0.05 mg/m <sup>3</sup>
SZ070249	Booth 5 - Personnel #2	Copper	0.0366 mg/m <sup>3</sup>	0.05 mg/m <sup>3</sup>	1 mg/m <sup>3</sup>
		Lead	0.0007 mg/m <sup>3</sup>	0.025 mg/m <sup>3</sup>	0.05 mg/m <sup>3</sup>
<b>Sample Number</b>	<b>Area/Person Monitored</b>	<b>Contaminant</b>	<b>Sample Results</b>	<b>Action Level</b>	<b>OEL</b>
SZ070250	Booth 6 - Personnel #3	Copper	0.033 mg/m <sup>3</sup>	0.05 mg/m <sup>3</sup>	1 mg/m <sup>3</sup>
		Lead	0.0007 mg/m <sup>3</sup>	0.025 mg/m <sup>3</sup>	0.05 mg/m <sup>3</sup>

SZ070253	<b>Booth 4 - Personnel #1</b>	Particulates	0.1249 mg/m <sup>3</sup>	2.5 mg/m <sup>3</sup>	5 mg/m <sup>3</sup>
SZ070254	<b>Booth 5 - Personnel #2</b>	Particulates	0.0413 mg/m <sup>3</sup>	2.5 mg/m <sup>3</sup>	5 mg/m <sup>3</sup>
SZ070255	<b>Booth 6 - Personnel #3</b>	Particulates	0.0564 mg/m <sup>3</sup>	2.5 mg/m <sup>3</sup>	5 mg/m <sup>3</sup>
SX070258	<b>Booth 4 - Personnel #1</b>	Ammonia	0 ppm	12.5 ppm	25 ppm
SX070259	<b>Booth 5 - Personnel #2</b>	Ammonia	0 ppm	12.5 ppm	25 ppm
SX070260	<b>Booth 6 - Personnel #3</b>	Ammonia	0 ppm	12.5 ppm	25 ppm
SX070261	<b>Booth 4 - Personnel #1</b>	Hydrogen Cyanide	0 ppm	5 ppm	10 ppm
SX070262	<b>Booth 5 - Personnel #2</b>	Hydrogen Cyanide	0 ppm	5 ppm	10 ppm
SX070263	<b>Booth 6 - Personnel #3</b>	Hydrogen Cyanide	0 ppm	5 ppm	10 ppm

#### Residential Occupants

Minimal impacts to civilians and property near the subject site are anticipated to occur. Currently, the CPD Firing Range has soil berms and wood ricochet walls on three sides: west, east and south. The main backstop berm provides the primary impact area for ammunition being fired at the range and prevents ammunition from leaving the range. The west and east side berms are protective barriers. Under the HQ AFSFC Small Arms Firing Range ORM Checklist, the berms at the CPD Firing Range met the conditions for a baseline determination of compliance.

While using the CPD Firing Range, CAFB personnel will maintain all safety precautions to ensure no risks to civilians and/or surrounding properties occur. This includes limiting the use of the CPD Firing Range to one day a week (Monday) during operating hours (between 8:00 A.M. and 5:00 P.M.), using small firearms that are compatible with CPD Firing Range, ensuring all combat arms training activities stay within the footprint of the firing range and transporting weapons and ammunition from the site after training. Also, during hours of combat arms training the firing range would be closed to all other agencies and civilians for use.

#### 4.9.3 No-Action Alternative

Under the No-Action Alternative, CAFB would discontinue using the CPD Firing Range to accomplish combat arms training. A reduced impact to safety and occupational health would occur as the result of the implementation of the No-Action Alternative.

## **CHAPTER 5: SUMMARY OF THE IMPACTS OF PROPOSED ACTION**

### **5.1 Impacts**

Lead can enter the air from friction between the barrel and an unjacketed bullet, burning lead compounds used in primer mixtures, the heat of burning powder acting on bullet base with exposed lead and lead recovery at shotgun and rifle/pistol ranges. Lead particles may fall onto shooting benches or the ground where they become mixed with soil or attached to soil. When soil is disturbed, lead particles can become airborne and then introduced to air where lead particles can become inhaled into the body or deposited on the skin. From March 2006 to July 2006, CAFB's contribution of lead rounds to the subject site was calculated to be 1,800 rounds (0.264%). Therefore, it is unlikely that the activities involved with CAFB actions resulted in any significant or adverse impacts to environmental resources at the CPD Firing Range.

Environmental impact considerations for long-term use of frangible projectiles include the release of lead-free metals and the inability to recover intact projectiles in the environment. Reports of irritation to human health or environmental impacts on outdoor firing ranges are not widely documented. Under the proposed action, minimal impacts from use of frangible ammunition to environmental resources are anticipated to occur. CAFB personnel use the CPD Firing Range one day a week (Monday) during normal working hours (between 8:00 A.M. and 5:00 P.M.). CAFB will enter a five-year temporary real estate license agreement to use the CPD Firing Range; therefore, long-term use of the CPD Firing Range will not occur. Currently, the construction of an indoor firing range at CAFB is a programmed project to be completed within the next seven to ten years.

Studies on the synergistic effect of lead and frangible ammunition at an outdoor firing range are not widely prevalent. At the CPD Firing Range, CAFB personnel currently use frangible ammunition only during combat arms training. The total of lead rounds expended by non-CAFB personnel is 97,400 rounds annually. It has been indicated that at firing ranges where both lead and lead-free ammunition is used, lead-free ammunition (e.g., zinc ammunition) may contaminate lead, making lead unsuitable for recycling (TURI, 2006). Under the proposed action, the limited use of the CPD Firing Range should minimize the likely potential for significant impacts to environmental resources. CAFB personnel use the CPD Firing Range one day a week (Monday) during normal working hours (between 8:00 A.M. and 5:00 P.M.). CAFB personnel will also continue using weapons and ammunition compatible with the original design of the firing range and collecting brass shell casings (scrap metal) from their ammunition.

Measures to reduce the potential for significant impacts contributed by CAFB personnel may include decreasing the quantity of rounds fired at the CPD Firing Range and the number of CAFB personnel (550-800) trained annually at the firing range.

## 5.2 Cumulative Impacts

Cumulative effects analysis considers the potential cumulative impacts resulting from the “incremental impacts of the action when added to other past, present and reasonably foreseeable future actions regardless of what agency or person undertakes such other actions” (40 CFR 1508.7). In this EA, the Air Force made an effort to identify all impacts that could potentially result in significant impacts to human health or the environment.

Currently, there are no actions occurring at or near or this location that would be significant when combined with impacts from this action.

## **Appendix A: LIST OF PREPARERS**

Name	Degree	Resource/Section	Professional Discipline	Years of Experience
Davis, Kimberly	B.S., Biology M.S., Veterinary Medical Science (Environmental Toxicology)	Technical Manager/Writer	Biological Scientist	1
Woods, Amanda	B.S., Wildlife and Fisheries	Technical Manager/Writer	Environmental Planner	1
Hayes, Bryant Sgt.	A.S. Bioenvironmental Engineering Technology	Noise	Bioenvironmental Engineering Technician	2
Jenson, Carolyn Capt.	B.S., Biology M.S., Natural Science	Section 1.3	Bioenvironmental Engineer	4
Peace, Christina Capt.	B.S., Biomedical Engineering	Air Quality	Bioenvironmental Engineer	6.5

## **Appendix B: LIST OF PERSONS AND AGENCIES CONSULTED**

Ms. Kathy Lunceford  
Vicksburg Ecological Service  
United States Fish and Wildlife Services  
6578 Dogwood View Parkway, Suite A  
Jackson, MS 39213

Ms. Mildred Tharpe  
State Clearinghouse for Federal Programs  
1301 Woolfolk Bldg., Suite E  
501 North West St.  
Jackson, MS 39213

Lt. Carroll Culpepper  
City of Columbus Police Department  
1501 Main St.  
Columbus, MS 39701

**Appendix C: INTERAGENCY AND INTERGOVERNMENTAL COORDINATION FOR  
ENVIRONMENTAL PLANNING**



**HEADQUARTERS 14TH FLYING TRAINING WING  
14TH CIVIL ENGINEER SQUADRON  
COLUMBUS AIR FORCE BASE MISSISSIPPI**

21 Oct 09

Ms. Renae Fischer  
Natural Resources Management Flight  
555 Simler Boulevard, Suite 114  
Columbus AFB MS 39710-6010

Ms. Kathy Lunceford  
Vicksburg Ecological Service  
United States Fish and Wildlife Service  
6578 Dogwood View Parkway, Suite A  
Jackson MS 39213-7856

Dear Ms. Lunceford

The U.S. Air Force has prepared the attached draft Environmental Assessment (EA) and draft Finding of No Significant Impact (FONSI) to assess the potential environmental impacts of temporarily using the Columbus Police Department (CPD) Firing Range to conduct combat arms training, and to document the decision that no significant impacts to resource areas at the CPD Firing Range would occur. The proposed action is needed to ensure Columbus Air Force Base personnel maintain weapons competency and qualification.

Since the mid 1950's, the CPD and Lowndes County Sheriff's Department have operated the facility as a firing range for officer and special unit qualification training and firearm accuracy training. The Luxapalila Creek (Lowndes County), which bounds the CPD Firing Range, contains six federally protected mussel species. Please provide additional comments or information by November 30, 2009 directly to: Ms. Amanda Woods, 14 CES/CEAN, 555 Simler Blvd. Suite 102, Columbus AFB, MS 39710. Your assistance in providing information is greatly appreciated. Ms. Woods can be reached at (662) 434-7144.

Sincerely

**RENAE FISCHER**  
Chief, Natural Resources Management Flight

Attachment:

1. Draft CPD Firing Range EA
2. Draft CPD Firing Range FONSI



HEADQUARTERS 14TH FLYING TRAINING WING  
14TH CIVIL ENGINEER SQUADRON  
COLUMBUS AIR FORCE BASE MISSISSIPPI

21 Oct 09

Renae Fischer  
Natural Resources Management Flight  
555 Simler Boulevard, Suite 114  
Columbus AFB MS 39710-6010

Ms. Mildred Tharpe  
State Clearinghouse for Federal Programs  
1301 Woolfolk Bldg, Suite E  
501 North West St.  
Jackson MS 39213-7856

Dear Ms. Tharpe

The U.S. Air Force has prepared the attached draft Environmental Assessment (EA) and draft Finding of No Significant Impact (FONSI) to assess the potential environmental impacts of temporarily using the Columbus Police Department (CPD) Firing Range to conduct combat arms training, and to document the decision that no significant impacts to resource areas at the CPD Firing Range would occur. The proposed action is needed to ensure Columbus Air Force Base personnel maintain weapons competency and qualification.

The Air Force is requesting input from federal, state, and local agencies on the draft EA and draft FONSI in accordance with Executive Order 12372, *Intergovernmental Review of Federal Programs*. Please identify any resources or projects within your agency's purview that may be potentially impacted or could add to the cumulative impact analysis. Please provide detailed information for any resources or projects that would occur during the same period as the Air Force's proposal. Please provide any comments or information by November 30, 2009 directly to: Ms. Amanda Woods, 14 CES/CEAN, 555 Simler Blvd. Suite 102, Columbus AFB, MS 39710. Your assistance in providing information is greatly appreciated. Ms. Woods can be reached at (662) 434-7144.

Sincerely

RENAE FISCHER  
Chief, Natural Resources Management Flight

Attachment:

1. Draft CPD Firing Range EA
2. Draft CPD Firing Range FONSI



HEADQUARTERS 14TH FLYING TRAINING WING  
14TH CIVIL ENGINEER SQUADRON  
COLUMBUS AIR FORCE BASE MISSISSIPPI

21 Oct 09

Ms. Renae Fischer  
Natural Resources Management Flight  
555 Simler Boulevard, Suite 114  
Columbus AFB MS 39710-6010

Lt. Carroll Culpepper  
City of Columbus Police Department  
1501 Main Street  
Columbus MS 39701-4971

Dear Lt. Culpepper

The U.S. Air Force has prepared the attached draft Environmental Assessment (EA) and draft Finding of No Significant Impact (FONSI) to assess the potential environmental impacts of temporarily using the Columbus Police Department (CPD) Firing Range to conduct combat arms training, and to document the decision that no significant impacts to resource areas at the CPD Firing Range would occur. All future mitigation efforts to reduce the potential for significant impacts and/or future cumulative environmental consequences would lie solely on the Columbus Police Department and Lowndes County Sheriff's Department.

The Air Force is requesting input from federal, state, and local agencies on the draft EA and draft FONSI in accordance with Executive Order 12372, *Intergovernmental Review of Federal Programs*. Please review and provide comments or concurrence with the findings presented in the draft EA and draft FONSI. Please submit your comments or concurrence by November 30, 2009 directly to: Ms. Amanda Woods, 14 CES/CEAN, 555 Simler Blvd. Suite 102, Columbus AFB, MS 39710. Your assistance in providing information is greatly appreciated. Ms. Woods can be reached at (662) 434-7144.

Sincerely

RENAE FISCHER  
Natural Resources Management Flight

Attachment:

1. Draft CPD Firing Range EA
2. Draft CPD Firing Range FONSI

**Appendix D: AIR FORCE FORM 813**

## **Appendix E: LIST OF REFERENCES**

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